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ABSTRACT

The 1979 Austin (Texas) Independent School District (AISD) summer program, centering on 3 campuses, included 33 preschool migrant children and 187 migrant or SCE-funded children in grades K-5 following a curriculum of enrichment and remediation in math, reading, and oral language development. In addition, 50 migrant secondary students attended remedial or required high school courses. Results of pre- and post-tests indicated that only the preschool students met the educational objectives of the program, showing significant gains in English language development. Students in grades 1-5 did not uniformly demonstrate a positive effect of the program, nor did secondary students have a higher rate of course completion than the previous year. Furthermore, evaluators noted that while the AISD program, like many other summer programs, had no significant long-term impact on the academic achievement of low-income students, such programs do help prevent those students from falling farther behind. Finally, teachers were shown to be less accurate predictors of fall achievement levels than were spring achievement tests. Recommendations included the development and evaluation of experimental summer schools fundamentally different in nature from previous programs. (SB)

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INTERIM EVALUATION REPORT: 1979
SUMMER SCHOOL PROGRAM

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THE 1979 SUMMER SCHOOL PROGRAM

During the summer of 1979, summer school programs were held on three AISD campuses: St. Elmo, Maplewood, and Austin High. Three groups of students participated in the summer school activities: Title I students whose tuition was paid by SCE funds, Title I Migrant students whose tuition was paid with Migrant funds, and students whose tuition was not paid for through compensatory education funds.

SCE funds were used to pay the tuition of 93 students in grades K-5. Title I Migrant funds were used to pay the tuition of 33 pre-kindergarten students, and 94 K-5 students. The summer school curriculum for the pre-kindergarten and K-5 students centered upon remediation and enrichment activities in reading, math, and oral language development.

Title I Migrant funds were also used to pay the tuition of 50 migrant students in grades 9-12. The funds allowed the students to take courses needed for graduation credit or remedial purposes.

EVALUATION FINDINGS

The evaluation of the AISD summer school programs was a cooperative effort of the Title I and Migrant evaluation staffs. The purposes of the evaluation were:

1. to determine whether or not the Title I and Migrant programs met their program objectives,
2. to assess the long-term impact of summer school (from spring to spring) and,
3. to determine whether or not the inclusion of teacher estimates of student achievement significantly improve the prediction of posttest scores (in October) from that obtained from pretest alone.

The evaluation results are described in detail in appendices to this report.

Attainment of Objectives

To measure the attainment of the objectives, pre-kindergarten students were tested at the beginning and end of summer school with the Test of Basic Experiences (Language Test); students in summer school grades 1-5 who had pretest scores from the spring were matched with non-summer school students and posttested with the California Achievement Test in October, and information about the number of courses begun and completed by secondary migrant students was collected.

Figure 1 shows which of these objectives were met. Only the pre-kindergarten students met their objectives. They showed a significant gain between pre and posttesting. Comparisons of the gains made by Title I and migrant students with their matched non-participants did not show a uniform positive effect of summer school attendance on achievement gains made across the summer. The secondary migrant students had a lower rate of successful completion for the courses they took this year than last.

Long-term Impact

To investigate the long-term impact of summer instruction, the achievement gains from April, 1978, to April, 1979 were examined for 1978 Title I summer school participants and their matches. The results showed that there was no significant difference between the gains made by the students over the intervening year.

Teacher Ratings and Achievement

This portion of the evaluation attempted to simulate the selection of Title I students under conditions when teacher estimates of achievement in the fall could be added to spring achievement test results.

The results showed that teachers are less accurate then spring achievement scores in predicting fall achievement levels. The addition of teacher estimates improved the prediction of all achievement from spring test scores, but only by about one percent. Such an improvement in prediction would not appear to warrant a change in the current procedure for the identification of Title I students, even if such a change would be approved by TEA. In addition, teachers were found to identify students scoring at or below the 40th percentile as well as spring pretest scores; however, analyses showed the teachers may have been unduly influenced by the pretest scores.

DISSCUSSION

ORE has done extensive outcome evaluations of Title I and Migrant summer school programs for several years. The results have consistently been the same-- *no evidence of an impact of summer programs*-- even though the programs have differed each year in such characteristics as curricular emphasis, the amount of pre-planning, and the amount or the structure of the staff development provided. It must also be noted that these programs have, at least on the surface, appeared to be well developed and well implemented. Informal observations have shown the teachers and students to have been highly motivated and involved, and attendance has been high. *Yet despite these promising feactures, the programs have not produced gains which could be detected in October.*

These negative findings are not limited to AISD. A study published by the National Institute of Education concluded that "the summer programs offered by the districts studied did not increase the achievement of compensatory education students (NIE, 1978, p. 83)." A research review and study by Heyns (1978) reached much the same conclusion.

Effective summer instruction, however, appears to be the key to preventing low-income students from falling farther and farther behind other students in achievement. Research (see Heyns, 1978; David, 1974; Murname, 1974; and Heynes & Grether, 1969) shows that for the most part low-income and minority students "hold their own" against other students during the school year; i.e., Title I students learn at about the same rate as other students during the school year. They may not close the gap in achievement level during the school year, *but neither do they fall much farther behind.* During the summer, low-income students do not forget things that they have previously learned; they simply do not learn as much as others.

Figure 2 provides a picture of what occurs. Note that the lines for the two groups are parallel from September through May. They diverege, however, during June, July, and August, only to become parallel again when the new year begins.

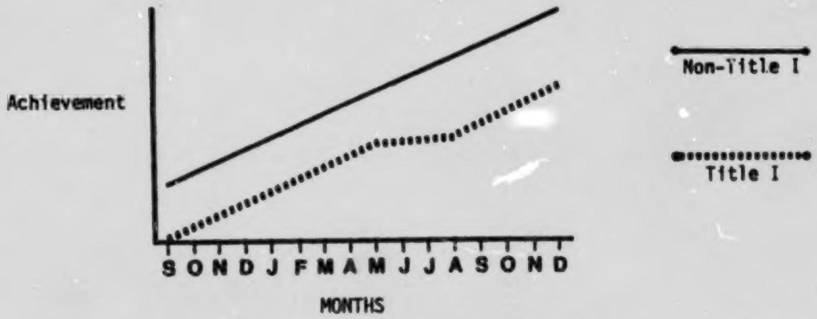

Figure 2. TYPICAL PATTERN OF ACHIEVEMENT GAINS.

In summary, there appear to be some basic problems in the ways the summer school programs are conceptualized and/or implemented which limit their effectiveness.

> *If the District is truly interested in making summer school instruction a priority, then resources should be concentrated upon the careful and systematic development, implementation, and evaluation of summer school programs that are fundamentally different from those offered in the past.*

RECOMMENDATIONS

It is recommended that:

- sufficient time be scheduled and a reasonable amount of resources be budgeted for careful and complete planning of summer school programs,
- the District establish a small number of research-based summer program which differ in fundamental ways from previous programs,

- the experimental programs also differ from each other in fundamental ways, and
- an evaluation be done of the programs that is of sufficient scope to allow for the identification of those characteristics which facilitate and impede summer achievement gains.

There are a number of ideas already percolating among various staff for changes in summer instruction that could enhance effectiveness. Some of the ideas are outlined below. However, these are provided only to illustrate. They are not a substitute for the systematic approach required to identify practices with the greatest potential.

1) Academic summer camp - students would remain on the campsite day and night during the instructional period.

2) Extended year with the foundation teacher continuing on as the summer school teacher.

3) Extending the summer school beyond the normal 3-6 week period.

4) Increasing the number of hours the summer school is in session each day.

5) Offering at-home reading and math exercises for the entire summer. Tutoring could be provided by parents, older siblings, or high achieving students. At-home exercises could be offered throughout the summer, or just following the usual 3-6 week summer school session.

6) Using tutors at a school setting.

7) Basing the summer school curriculum totally, or in part, upon computer assisted instruction.

8) Basing the summer school curriculum totally, or in part, upon contingency management techniques. For example, a day-camp setting offering art, music, or sports activities but making them contingent upon the completion of specific amounts of academic work.

9) Offering a summer school reinforced reading program at a school library or on an at-home basis.

SUMMER SCHOOL REPORT OVERVIEW

OBJECTIVES	EVALUATION FINDINGS
When compared to a matched control group of non-summer school students "Title I" summer school students will show a significant achievement gain ($p \geq .05$) in Reading Total score as measured by pre- and post administration (April and October) of the California Achievement Test.	Analyses reported in Appendix A showed that the 93 Title I summer school students did not make achievement gains across the summer which were greater than those made by students who did not attend summer school.
By the end of the summer program, the migrant children in pre-K summer school classes will show significant gains on a measurement instrument to be developed by the Office of Research and Evaluation staff, or a commercially prepared test applicable to the target population.	A total of 33 migrant students participated in the Migrant pre-kindergarten summer school program. The TOBE Language Test (available in English or Spanish) was administered as a pre- and posttest measure. Twenty-one of the students were pre- and posttested with the English version of the TOBE Language Test. These students had an average score of 16.24 on the pretest and 18.38 on the posttest. This gain is highly significant ($t = -3.87$, $p \geq .001$), and reveals the majority of the pre-K participants completing attained the objective. Too few pre-K students ($n = 2$) were pre- and posttested with the Spanish version of the TOBE Language Test to allow for meaningful pre-posttest comparisons. Ten pre-K students were excluded from the analyses because they lacked pre- and/or posttest scores.
By the end of the summer program, the migrant children in K-5 summer school classes will show significant gains on a measurement instrument to be developed by the Office of Research and Evaluation staff, or a commercially prepared test applicable to the target population.	Like their Title I counterparts, the 94 migrant summer school students in grades K-5 did not make gains in achievement significantly greater than those of their matched comparison group.

Figure 1. 1979 SUMMER SCHOOL OBJECTIVES AND EVALUATION FINDINGS

Figure 1. CONTINUED

SUMMER SCHOOL REPORT OVERVIEW

OBJECTIVES	EVALUATION FINDINGS
Between 50 and 100 secondary students will be registered and will attend classes offered through the AISD regular summer school program, and 80% will receive credit for courses taken. Only academic subjects will be offered to migrant students.	Tuition was approved for 62 secondary migrant students. A total of 50 of these students registered and attended at least one class. Thirty-eight (76%) of the students who registered and attended classes received credit for one or more courses. Overall, migrant students registered for 132 courses and received credit (a grade of D or better) for 78 (59%) of the courses they began. This represents a decline from 1978, when 49 migrant students attended summer school and received credit for 76% of the courses they began.

79.16

ESEA Title I

Appendix A

CALIFORNIA ACHIEVEMENT TESTS

CALIFORNIA ACHIEVEMENT TESTS

Purpose

The reading section of the California Achievement Tests (CAT) was administered to provide information relevant to the following questions:

1. *Did summer school participants demonstrate a significantly greater gain in reading vocabulary and comprehension skills than a matched group of students who did not participate in summer school, as measured by pre- and posttesting with the CAT in April and October, 1979?*
2. *Did 1978 Title I summer school participants demonstrate a significantly greater gain in reading vocabulary and comprehension skills than a matched group of students who did not participate in summer school, as measured by pre- and posttesting with the CAT in April, 1978, and April, 1979?*
3. *Can the inclusion of a teacher estimate of student achievement level significantly improve the predication of posttest score from that obtained from pretest alone?*

Procedure

The CAT was administered in the spring of 1979 (April) to all AISD students as part of the Districtwide testing program administered by ORE. The reader is referred to the Systemwide Evaluation Technical Report, 1978-1979 for a description of the procedures used in that testing.

During the summer of 1979, rosters of students attending the district summer school were obtained from the schools. Three groups of students were identified from those rosters: students whose parents paid their tuition, Title I students whose tuition was paid by SCE, and students whose tuition was paid by Title I Migrant funds. Students from these three groups who had valid CAT tests from the spring were matched with others on school, grade, sex, and spring CAT score for testing in October. In cases where exact matches could not be made on the pretest, an attempt was made to match on the nearest raw score. If two values were equally near the target score (for example, 45 and 49 are equally close to 47), the choice of students was randomly made between matches at both score levels. Students eliminated because of possibly invalid scores included those with "Special Circumstances" or "Possibly Invalid" indications on the CAT file, and those who were retested at Rosewood. Also those students who were retested by their schools as part of the Title I identification process, because they were felt to have invalid scores, were excluded.

Students who, according to the HEW file, were retained in the same grade at the end of the 1978-79 school year were not posttested.

In mid-September the memo shown in Attachment A-1 was sent to schools with summer school participants. Two enclosures accompanied the memo. The first was a tentative list of students to be tested. The second was a form for obtaining the classroom teacher's estimate of the achievement level of each student to be tested. A copy of this form is included in Attachment A-1. In returning the forms, schools sometimes indicated that a student was no longer attending the school. The absent students who attended summer school and their matches were dropped from the final list of students to be tested. If the absent student was a control student, he/she was replaced with a new match.

The final lists of students to be tested were mailed to the schools, along with test materials, in late September. Attachment A-2 is a copy of the cover memo and the instructions for testing. As the instructions indicate, the students were given the same level of the CAT they had taken in April. When the testing was completed the tests were returned to ORE where they were scored.

For each group of students included in the evaluation -- Title I, Title I Migrant, and tuition paid -- the number of matched pairs with both pre- and posttest scores was rather small at each grade. Figure A-1 below shows the number of such pairs for each group.

	79-80 Grade			
Group	2	3	4	5
Title I	6	19	14	17
Title I Migrant	10	8	8	10
Tuition Paid	5	10	11	5
Total	21	37	33	22

Figure A-1. NUMBER OF PAIRS WITH PRE- AND POSTTEST SCORES BY GRADE

Because the number of students was relatively small in each program by grade combination, the cases were aggregated across either grade or program whenever statistical tests were computed. Two basic types of comparison were made. They are described below so that further references to the comparisons can be made by referring to a specific type, such as "Type A."

Type A: Type A compared summer school and control students by grade across programs. For example, all summer school students (Title I, Title I Migrant, and tuition paid) at grade 2 were compared with all control students at that grade. The comparisons were made on raw scores.

Type B: Type B compared summer school and control students within program across grades. For example, Title I summer school students from all grades were compared with Title I control students from all grades. ADSS scores were used in these comparisons.

Type B comparisons included those which compared all summer school students across grades and programs with all control students.

Question 1

The specific analyses done to provide information relevant to question 1 were as follows:

1. The computation of average (raw score) pretest, posttest, and gain scores for each group by grade (e.g., Title I summer school students in grade 2, Title I summer school students in grade 3, etc.).
2. Type A comparisons of mean pretest scores. The significance of the observed mean differences were assessed with *t* tests.
3. Type B comparisons on mean pretest scores. Again, *t* tests were used to test for significant differences.
4. Type A comparisons on mean posttest scores. Again, *t* tests were used.
5. At each grade, the significance of the achievement gain from April to October was assessed for all summer school students and for all control students; e.g., the spring and fall mean scores for second grade summer school students were compared.
6. For each program, the significance of the gain from spring to fall was determined for all summer school students and for all control students combined across grades; e.g., pre- and posttest scores for Title I summer school students were compared.
7. A Type A comparison was done at each grade using the following linear models:

   Model 1: $Y = a_0U + a_1X^{(1)} + a_2X^{(2)} + a_3X^{(4)} + E$

   Model 2: $Y = a_4U + a_5X^{(3)} + a_6X^{(4)} + E$

   Model 3: $Y = a_7U + a_8X^{(3)} + E$

   The vectors used to define the models are as follows:

   Y is posttest raw score.

   U is the unit vector.

$X^{(1)}$ is pretest if the student attended summer school; 0, if control.

$X^{(2)}$ is pretest if the student was a control; 0, otherwise.

$X^{(3)}$ is pretest raw score.

$X^{(4)}$ is 1 if the student attended summer school; 0, otherwise.

Models 1 and 2 were compared which gave a result which was the equivalent of the test for equivalent slopes in the analysis of covariance. Models 2 and 3 were then compared to test for equivalent slopes.

8. Finally, Type B analyses were done using the same models; however, ADSS scores were used in place of raw score.

All analyses were done on the AISD computer using the EDSTAT statistical package. Program ANOVA was used to do the *t* tests. Program REGRAN was used for the comparisons of the linear models.

Question 2

One set of analyses was done to provide information about evaluation question 2. In order to see if some sort of delayed effect of summer school might exist, the file from the 1978 summer school evaluation was updated at two grades to include April, 1979, CAT scores. Students in grades 2 and 3 take the same level of the CAT. The same is true for grades 4 and 5. Grade 3 and grade 5 CAT scores were added for summer school and control students who had been in grades 2 and 4 respectively during 1977-78 school year. The slopes and intercepts tests described in number 7 above were used to see if a difference could be detected in the gains made by the groups over the course of a year.

Question 3

A number of analyses were done to examine the relationship between teacher judgement and test scores for question 3. The analyses began with three variables: April, 1979, CAT scores; October, 1979, CAT scores; and teacher estimates of achievement level obtained prior to the October testing using the form included in Attachment A-1. The teacher estimates represented the deciles which the teacher felt best represented the achievement levels of the students. For the purpose of these analyses the decile ranges were coded from 1 (percentile 1 to 10) to 10 (percentiles between 90 and 99). In addition, two deviation scores were computed. The pretest and posttest CAT scores were converted to deciles and coded in the same way as the teacher estimates. The first deviation score, the pretest deviation score, was computed by subtracting the pretest decile from the posttest decile for each student. The second deviation score, the expectation deviation score, was computed by subtracting the teacher expectation decile from the posttest decile. The analyses performed using these variables are described below.

1. The deviation scores provided a way of comparing the accuracy of the pretest and teacher expectations in predicting the posttest. A frequency distribution for each deviation scale was prepared, and the mean, standard deviation, and standard error of each variable was computed. The means and variances of the two deviation score distributions were compared using t tests.

2. Regression analysis was used to determine whether teacher expectations added any accuracy to the prediction of posttest score by pretest. Two linear models were created using program REGRAN of the EDSTAT package. The two models are described below:

   $$\text{Model 1:} \quad Y = a_0U + a_1X^{(1)} + a_2X^{(2)} + E$$

   $$\text{Model 2:} \quad Y = a_3U + a_4X^{(1)} + E$$

   where,

   Y is October CAT Reading Total percentile.

   U is the unit vector.

   $X^{(1)}$ is April CAT Reading Total percentile.

   $X^{(2)}$ is coded teacher expectation decile.

   An F test was used to compare the two models. In addition, the standard error of estimate and the index of forcasting efficiency were computed for each model. The standard error of estimate was computed using the following formula:

   $$\text{Standard error} = \delta_y \sqrt{1-R^2}$$

   The index of forcasting efficiency, the percentage reduction in errors of prediction, was computed using the formula:

   $$E = 100(1-\sqrt{1-R^2})$$

3. The posttest scores and teacher expectations were dichotomized at the 40th percentile, and a 2X2 table was created to show how well the teachers could identify which students met the Title I eligibility criterion. Chi square was used to determine whether the teachers' judgements were significantly better than chance. These procedures were repeated two more times using the following pairs of dichotomized variables: pretest and posttest; and the posttest scores predicted by Model 1 and posttest score.

4. In a discussion with Title I staff, one of the reading supervisors noted that the teachers on Title I campuses were paying very close attention to spring CAT scores in making their estimates of fall achievement levels because they wanted to be as accurate as possible.

They understood that the reason for gathering the estimates was to see whether teacher judgement could be used in improving the identification of Title I students. The question raised was whether the teachers paid undue attention to the spring test scores. That question cannot be completely answered with this data; however, relevant information is contained in the magnitude of the correlations between teacher ratings and pre- and posttest scores. If the correlation between teacher ratings and pretest scores were higher than the correlation between teacher ratings and posttest scores, one could argue that the teachers may have been greatly influenced by the pretest scores in making their estimates. The formula below (developed by Hotelling) for the differences between correlated coefficients of correlation (Guilford and Fruchter, 1973) was used to test the difference in correlations.

$$t_d = (r_{12}-r_{13})\sqrt{\frac{(N-3)\,(1+r_{23})}{2(1-r_{23}{}^2-r_{12}{}^2-r_{13}{}^2+2r_{23}r_{12}r_{13})}}$$

where,

N = number of students

r_{12} = correlation between teacher expectation and pretest

r_{13} = correlation between teacher expectation and posttest

r_{23} = correlation between pretest and posttest

The number of df for this formula is N-3. The differences between the other two pairs of correlations were also examined.

Results

The results of the analyses listed above are reported by question.

Question 1: Attainment of Objective

The results relevant to this question are contained in Figures A-2 through A-11. Support for the following conclusions can be found in the figures.

1. The matching of summer school and control students was well done. In no cases did the differences between the two groups even approach significance (Figures A-3 and A-4).
2. Neither did summer school and control students differ on posttest scores (Figure A-5).
3. At grades 2 and 3 there was no evidence of a gain across the summer for either summer school or control students. At grade 4 both summer school and control students gained significantly. At grade 5 summer school students gained significantly but control students did not. (Figure A-6).

4. When summer gains are examined by program, significant gains can be found for migrant summer school students, tuition paid control students, and all summer school and all control students. (Figure A-7).

5. While the above suggest that significant gains were made by some groups at some grades, it does not compare the summer school and control students on the relative sizes of the gains they made. The results in Figures A-8 and A-9 make those comparisons. The results are clear for grades 2 and 3. Summer school students did not gain more than control students. At grades 4 and 5 the results are not as clear. At these grades, the slopes of the regression lines for the regression of posttest on pretest are not equal for summer school and control students. The implications of such a situation are clear from an examination of the graphs in Figures A-10 and A-11. At grade 4 low scoring control students scored higher on the posttest than summer school students with the same pretest score. However, at higher pretest score levels the school students did better than controls on the posttest. In the middle range the two groups did equally well. About 45% of each group scored, on the pretest, above the point where the slopes intersected, about 55% below. The same pattern existed at the fifth grade except the point of intersection of the two regression lines dropped to about the 15th percentile on the pretest. About 23% of each group scored below this point on the pretest.

These findings make general statements about the effects of summer school difficult. Two possible interpretations are described below.

1. It is possible that the findings show a threshold effect for summer school effectiveness. At fourth grade the regression lines intersect at the equivalent of an ADSS score of about 354. At grade 5 they intersect at an ADSS score of about 334. One could argue that low-achieving fourth and fifth grade students must reach an achievement level in the range of about 335 to 350 in order to benefit from the instruction provided during a brief summer school program. Fourth and fifth graders scoring below this range would benefit most from not attending an organized summer instructional program, and younger students benefit equally from attending or not attending summer school.

2. A second interpretation is that the first hypothesis is the result of going too deeply into the data, that the results at grades four and five are contradictory and are random in origin. It is hard to conceive of reasons why summer school would be damaging to the achievement gains made by students. One would expect the experience to either have a positive effect or no effect at all. Given the fact that over forty significance tests are reported in this appendix, it is not unlikely that one or two significant differences would be due to chance alone.

It has been the pattern over the last several years for one or two significant differences to be found in the achievement gains made by summer school and control students. However, the results do not form any kind of coherent pattern. In some cases summer school students appear to benefit from instruction. In other cases, summer school seems to be a detrimental influence. This lack of a pattern to the findings suggests either that the results are random occurrences or that certain teachers or curricula at some grades are particulary beneficial or detrimental each summer but their influences are not widespread or consistent.

When the test results are examined by source of tuition (Title I, Migrant, or tuition paid), none of the groups show evidence of a general, positive effect.

Question 2: Long-Term Effects of Summer School

The results of the analysis to test the long-term impact of summer instruction are shown in Figure A-12. They show that there was no significant difference between the gains made by the students over a year's time. If any trend existed, it favored the control students.

Question 3: Teacher Ratings and Achievement

A number of subquestions were examined in relation to question 3. The results will be presented by subquestion.

Are teachers as accurate as the pretest in predicting the posttest?
To answer this question the pretest deviation score (posttest decile minus pretest decile) and expectation deviation score (posttest decile minus teacher expectation decile) were computed and tabled in a frequency distribution. The results along with the mean, standard deviation, and standard error for each variable can be found in Figure A-13. An examination of the means of the two distributions and their standard errors shows that both means are significantly below 0; i.e., both the teachers and the pretest tended to overestimate the posttest score. A comparison of the two means (Figure A-14) showed that the teachers overestimated the posttest scores by a greater margin than the pretest scores.

Another method of determining how "on target" the two predictions were would be to compare the variances of the two distributions. Figure A-15 shows that the variances were significantly different. The variance for the expectation deviation was larger than that of the pretest deviation.

Can teacher ratings add to the prediction of posttest scores from pretest scores?
Figure A-16 shows the results of the regression analysis done to answer this question. They showed that teacher ratings did significantly improve the prediction of posttest score. However, the increase in forcasting efficiency was less than one percent, 0.95% to be exact.

How well can teachers identify students scoring below the 40th percentile?

Figure A-17 can be read as three tables of "hits and misses" in identifying students scoring below 40th percentile. Those cells in each 2X2 table which show agreement between the two predictors (top left and bottom right cells) are the hits. The others are the misses. The figures show that using pretest to predict posttest the hit rate was about 79%. Using teacher expectation, it was 81%. Using a predicted score based on the prediction equation including pretest and teacher expectation, it was 80%. The chi square figures at the bottom of each table show that in each case there was a strong association between the predictor and posttest: however, the accuracy of the three sets of predictions probably does not differ significantly. It appears that the practical benefits of a 2% difference would not warrant a change in the current Title I identification process even if such a change would be approved by TEA.

In conclusion, teachers do as good a job of identifying students scoring below the 40th percentile in October as do achievement test scores from the previous spring.

Were teachers unduly influenced by pretest scores in estimating student achievement levels?
The assumption underlying the results reported in Figure A-18 was that if teachers in Title I schools were unduly influenced by pretest scores in estimating posttest scores (in order to show that teacher judgement could be used in identifying Title I students), then the correlation between expectation scores and pretests should be higher than the correlation between expectation score and posttest. The results in Figure A-18 show that to be the case. In addition, the correlations showed

a. that posttest correlated better with pretest than with teacher expectation, and

b. that pretest did not correlate better with teacher expectation than with posttest.

Summary

In summary the following conclusions can be reached.

1. There is no uniform positive effect of summer school attendance on achievement gains made across the summer.
2. There is no uniform positive effect of summer school attendance on achievement gains made from spring to spring.
3. Teachers are less accurate than spring achievement scores in predicting fall achievement levels.
4. The addition of teacher estimates improves the prediction of fall achievement from spring test scores, but only by about one percent.

5. Teachers, in the fall, can identify students scoring at or below the 40th percentile as well as spring pretest scores; however, the teachers may have been unduly affected by the pretest scores.

79.16

Group	N	Pretest		Posttest		Gain	
		RS	%ile*	RS	%ile*	RS	%ile
Title I Summer School							
Grade 2	6	71.5	45	80.5	49	9.0	4
Grade 3	19	36.3	26	35.8	17	-0.5	-9
Grade 4	14	56.4	28	58.0	25	1.6	-3
Grade 5	7	28.1	20	31.6	21	3.5	1
Title I Control							
Grade 2	6	74.8	53	75.3	38	0.5	-15
Grade 3	19	37.4	28	39.9	24	2.5	-4
Grade 4	14	57.0	29	59.4	25	2.4	-4
Grade 5	7	28.4	21	29.4	18	1.0	-3
Title I Migrant Summer School							
Grade 2	10	74.6	53	74.2	35	-0.4	-18
Grade 3	8	44.3	41	48.4	35	4.1	-6
Grade 4	8	48.6	22	53.8	22	5.1	0
Grade 5	10	32.6	30	35.9	29	3.3	-1
Title I Migrant Control							
Grade 2	10	74.5	52	76.5	41	2.0	-11
Grade 3	8	44.6	41	47.1	33	2.5	-8
Grade 4	8	49.1	22	52.6	21	3.5	-1
Grade 5	10	32.5	30	33.7	25	1.2	-5
Tuition Paid Summer School							
Grade 2	5	73.2	49	78.2	47	5.0	-2
Grade 3	10	51.8	52	54.5	42	2.7	-10
Grade 4	11	65.2	37	65.9	32	0.7	-5
Grade 5	5	31.4	27	39.0	35	7.6	8
Tuition Paid Control							
Grade 2	5	73.0	49	74.4	36	1.4	-13
Grade 3	10	52.3	52	52.2	40	-0.1	-12
Grade 4	11	66.3	40	69.5	39	3.2	-1
Grade 5	5	31.0	26	34.8	27	3.8	1
All Summer School							
Grade 2	21	73.4	50	77.0	41	3.6	-9
Grade 3	37	42.2	37	43.6	29	1.4	-8
Grade 4	33	57.4	29	59.6	26	2.2	-3
Grade 5	22	30.9	26	35.2	27	4.3	1
All Control							
Grade 2	21	74.2	52	75.7	39	1.4	-13
Grade 3	37	43.0	38	44.8	31	1.8	-7
Grade 4	33	58.2	30	61.1	27	2.9	-3
Grade 5	22	30.9	26	32.6	23	1.7	-3

* Percentile scores are not mean percentiles but percentile equivalents for the mean raw scores.

Figure A-2. MEAN PRETEST, POSTTEST, AND GAIN SCORES FOR SUMMER SCHOOL STUDENTS AND CONTROL.

Group	Pretest Mean	N	t	df	p
Grade 2					
Summer School	73.4	21	0.182	40	0.85
Control	74.2	21			
Grade 3					
Summer School	42.2	37	0.221	72	0.82
Control	43.0	37			
Grade 4					
Summer School	57.4	33	0.179	64	0.85
Control	58.2	33			
Grade 5					
Summer School	30.9	22	<0.001	42	0.99
Control	30.9	22			

Figure A-3. COMPARISON OF SUMMER SCHOOL AND CONTROL STUDENTS ON CAT PRETEST RAW SCORES BY GRADE.

Groups	Mean	N	t	df	p
Title I Summer School	312.3	46	0.352	90	0.73
Title I Control	315.7	46			
Migrant Summer School	322.8	36	<0.001	70	0.98
Migrant Control	322.5	36			
Tuition Summer School	342.1	31	0.084	60	0.93
Tuition Control	343.1	31			
All Summer School	323.8	113	0.230	224	0.81
All Control	325.4	113			

Figure A-4. COMPARISON OF SUMMER SCHOOL AND CONTROL STUDENTS ON CAT PRETEST SCORES (ADSS) BY PROGRAM.

Group	Posttest Mean	N	t	df	p
Title I Summer School	319.3	46	.224	90	0.82
Title I Control	321.7	46			
Migrant Summer School	333.5	36	.245	70	0.80
Migrant Control	330.1	36			
Tuition Summer School	353.4	31	.084	60	0.93
Tuition Control	354.6	31			
All Summer School	333.2	113	.032	224	0.97
All Control	333.4	113			

Figure A-5. COMPARISONS OF SUMMER SCHOOL AND CONTROL STUDENTS ON POSTTEST (ADSS) SCORES BY PROGRAM.

Group	Means Pretest	Means Posttest	N	t	df	p
Grade 2						
Summer School	73.4	77.0	21	1.54	20	0.14
Control	74.2	75.7	21	0.67	20	0.51
Grade 3						
Summer School	42.2	43.6	37	0.92	36	0.37
Control	43.0	44.8	37	1.38	36	0.17
Grade 4						
Summer School	57.4	59.6	33	2.03	32	0.05
Control	58.2	61.1	33	2.40	32	0.02
Grade 5						
Summer School	30.9	35.2	22	3.13	21	0.01
Control	30.9	32.6	22	1.22	21	0.23

Figure A-6. COMPARISON OF PRE- AND POSTTEST RAW SCORES FOR SUMMER SCHOOL AND CONTROL STUDENTS BY GRADE.

	Mean					
Group	Pretest	Posttest	N	t	df	p
Title I						
Summer School	312.3	319.3	46	1.73	45	0.09
Control	315.7	321.7	46	1.51	45	0.13
Title I Migrant						
Summer School	322.8	333.5	36	2.54	35	0.02
Control	322.5	330.1	36	1.60	35	0.12
Tuition Paid						
Summer School	342.1	353.4	31	1.94	30	0.06
Control	343.1	354.6	31	2.31	30	0.03
All Summer School	323.8	333.2	113	3.54	112	<0.01
All Control	325.4	333.4	113	3.10	112	<0.01

Figure A-7. COMPARISON OF PRE- AND POSTTEST ADSS SCORES FOR SUMMER SCHOOL AND CONTROL STUDENTS BY PROGRAM.

		Raw Score Mean		Equal Slopes			Equal Gains		
Groups	N	Pretest	Posttest	df	F	p	df	F	p
Grade 2									
Summer School	21	73.4	77.0	1,38	0.088	0.77	1,39	0.424	0.53
Control	21	74.2	75.7						
Grade 3									
Summer School	37	42.2	43.6	1,70	2.079	0.15	1,71	0.078	0.78
Control	37	43.0	44.8						
Grade 4									
Summer School	33	57.4	59.6	1,62	4.960	0.03	-	*	-
Control	33	58.2	61.1						
Grade 5									
Summer School	22	30.9	35.2	1,40	4.185	0.04	-	*	-
Control	22	30.9	32.6						

* Note that the slopes at these grades are not equal. The test for equal gains is not meaningful when the slopes are not equal.

Figure A-8. COMPARISON OF GAINS MADE BY SUMMER SCHOOL AND CONTROL STUDENTS BY GRADE.

		ADSS Means		Equal Slopes			Equal Gains		
Groups	N	Pretest	Posttest	df	F	p	df	F	p
Title I Summer School	46	312.3	319.3	1,88	0.236	0.63	1,89	0.023	0.88
Title I Control	46	315.7	321.7						
Migrant Summer School	36	322.8	333.5	1,68	1.494	0.22	1,69	0.259	0.62
Migrant Control	36	322.5	330.1						
Tuition Summer School	31	342.1	353.4	1,58	2.237	0.14	1,59	<0.001	1.00
Tuition Control	31	343.1	354.6						
All Summer School	113	323.8	333.2	1,222	0.024	0.87	1,223	0.113	0.74
All Control	113	325.4	333.4						

Figure A-9. COMPARISON OF GAINS MADE BY SUMMER SCHOOL AND CONTROL STUDENTS BY PROGRAM.

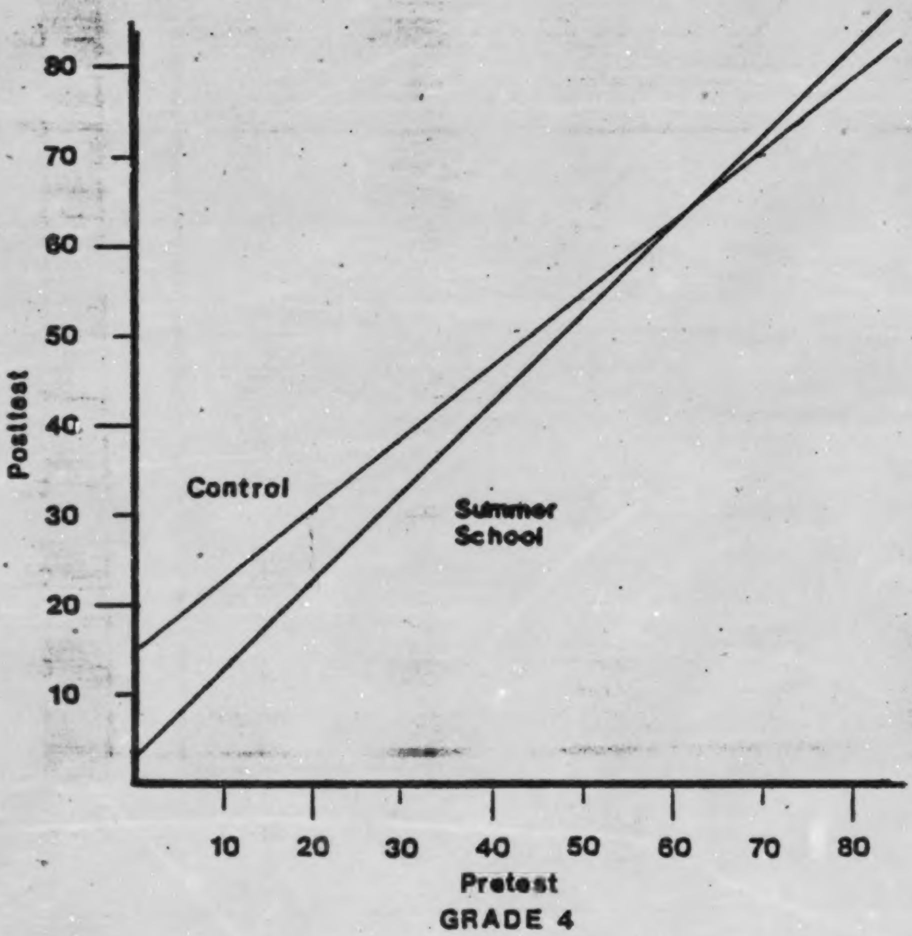

Figure A-10. GRAPH SHOWING UNEQUAL REGRESSION SLOPES AT GRADE 4.

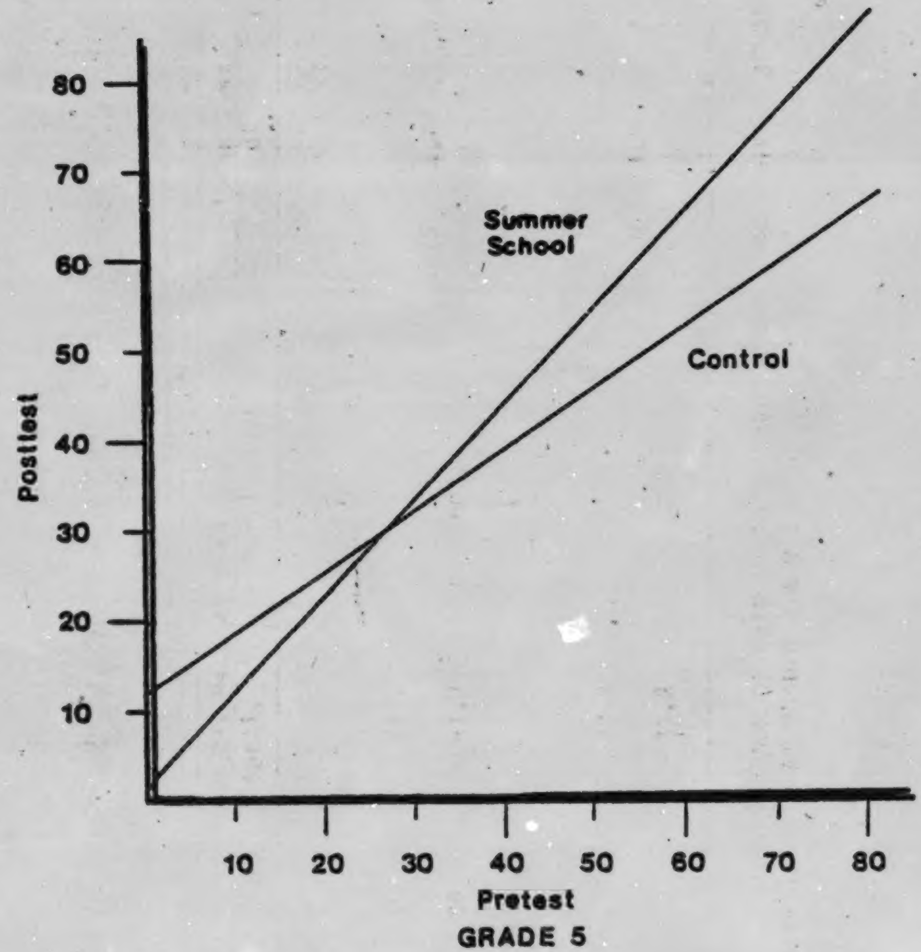

Figure A-11. GRAPH SHOWING UNEQUAL REGRESSION SLOPES AT GRADE 5.

Group	N	MEAN CAT Reading Total Raw Score		Slopes Test			Intercepts Test		
		April, 1978	April, 1979	F	df	p	F	df	p
Grade 3 (78-79)									
Summer School	36	41.4	55.3	0.025	1,68	0.87	1.799	1,69	0.18
Control	36	41.7	60.1						
Grade 5 (78-79)									
Summer School	49	33.2	40.9	0.566	1,94	0.46	0.584	1,95	0.45
Control	49	33.2	42.2						

Figure A-12. FOLLOW-UP COMPARISON OF GAIN BY 1978 SUMMER SCHOOL AND CONTROL STUDENTS FROM APRIL, 1978, TO APRIL, 1979, AT GRADES 3 AND 5.

Deviation Value	Pretest Deviation Score Frequency	Pretest Deviation Score Percent	Expectation Deviation Score Frequency	Expectation Deviation Score Percent
-6	1	0.5	1	0.5
-5	1	0.5	1	0.5
-4	5	2.5	4	2.0
-3	10	4.9	19	9.3
-2	23	11.3	33	16.2
-1	49	24.0	47	23.0
0	59	28.9	49	24.0
1	33	16.2	22	10.8
2	12	5.9	16	7.8
3	9	4.4	7	3.4
4	1	0.5	2	1.0
5	1	0.5	2	1.0
6	0	0.0	1	0.5
Mean	-0.31		-0.48	
Standard Deviation	1.65		1.85	
Standard Error	0.12		0.13	

Pretest Deviation Score = Posttest Decile-Pretest Decile
Expectation Deviation Score = Posttest Decile-Expectation Decile

Figure A-13. FREQUENCY DISTRIBUTION FOR PRETEST AND EXPECTATION DEVIATION SCORES.

Deviation Score	Mean	r	t	df	p
Pretest Deviation	-0.31	.67	1.7	203	>.05
Expectation Deviation	-0.48				

Figure A-14. COMPARISON OF DEVIATION SCORE MEANS.

Deviation Score	Variance	t	df	p
Pretest Deviation	2.74	2.12	203	<.05
Expectation Deviation	3.42			

Figure A-15. COMPARISON OF DEVIATION SCORE VARIANCES.

79.16

Variables: Y = October CAT Reading Total percentile.

$X^{(1)}$ = April CAT Reading Total percentile.

$X^{(2)}$ = teacher estimate of student achievement (decile).

Variable	Mean	Sigma
Y	34.22	23.96
$X^{(1)}$	37.07	24.04
$X^{(2)}$	4.35	2.19

Model 1: $\hat{Y} = 2.2043 + 0.6249X^{(1)} + 2.0316X^{(2)}$

Model 2: $\hat{Y} = 5.5034 + 0.7745X^{(1)}$

R^2 Model 1 = 0.6155 $df = 1,201$

R^2 Model 2 = 0.6036 $F = 6.183$

Difference = 0.0118 $p = 0.0131$

Statistic	Model 1	Model 2
Standard Error of Estimate	14.86	15.09
Index of Forcasting Efficiency	37.99	37.04

Figure A-16. REGRESSION ANALYSIS ASSESSING THE IMPROVEMENT OF PREDICTION RESULTING FROM THE INCLUSION OF TEACHER EXPECTATION SCORES.

		Pretest	
		40th %ile or Below	Above 40th %ile
Posttest	40th %ile or Below	109 (53%)	29 (14%)
	Above 40th %ile	12 (6%)	54 (26%)

Chi Sq. = 68.40 (p<.001)

		Teacher Expectation	
		40th %ile or Below	Above 40th %ile
Posttest	40th %ile or Below	111 (54%)	27 (13%)
	Above 40th %ile	11 (5%)	55 (27%)

Chi Sq. = 75.52 (p<.001)

		Posttest Predicted From Pretest and Teacher Expectation	
		40th %ile or Below	Above 40th %ile
Posttest	40th %ile or Below	113 (55%)	25 (12%)
	Above 40th %ile	16 (8%)	50 (25%)

Chi Sq. = 63.81 (p<.001)

Figure A-17. ACCURACY OF THREE WAYS OF PREDICTING TITLE I ELIGIBILITY.

Correlations Being Compared*	Values of Corelations	t	df	p
r_{12} and r_{13}	.81 vs. .69	4.43	201	<.01
r_{12} and r_{23}	.81 vs. .78	1.08	201	>.05
r_{13} and r_{23}	.69 vs. .78	-3.35	201	<.01

r_{12} = correlation between teacher expectation and pretest.

r_{13} = correlation between teacher expectation and posttest.

r_{23} = correlation between pretest and posttest.

Figure A-18. COMPARISON OF CORRELATIONS. WERE TEACHERS UNDULY INFLUENCED BY PRETEST SCORES?

Attachment A-1
(page 1 of 2)

AUSTIN INDEPENDENT SCHOOL DISTRICT
Office of Research and Evaluation

September 13, 1979

TO: Principals

JC.

FROM: Jonathan Curtis, Senior Evaluator for
Compensatory Education Programs

SUBJECT: Summer School Posttesting and Make-up For Summer School Students

As part of the evaluation of the AISD summer school program, the participants and a matched control group must be tested with the reading subtest of the California Achievement Tests. Also, migrant students in a school with a Migrant Program teacher must be tested if they were not tested last April. We are combining the two testing needs into one endeavor in an attempt to reduce the impact of the testing at the campus level.

The list on the attached page is our tentative list of students to be tested on your campus. If you have a Migrant Program, additional students may also need to be tested. They must be tested during the week of October 1-5. The final list of students to be tested (including any migrant students), instructions, and testing materials will be sent to your school next week.

We also need some other information from your school. We are investigating alternatives to the current way of identifying Title I students. One of the things we need to know is how well teachers can estimate the achievement levels of their students. The enclosed forms will provide us with information relevant to that question. Please pass the forms to the classroom teachers of the students who are listed on them. Ask them to complete the forms and mail them back to us by the end of the week if possible. This should take a very few minutes of teacher time, but it will provide us with some very valuable information.

Please give me a call if you have any questions about the testing or the enclosed forms.

Approved: Freda M Holley
Director of Office of Research and Evaluation

Approved:
Director of Elementary Education

JC:lfs

cc: Lee Laws
Oscar Cantu
Title I Reading Coordinators
Jose Mata

AUSTIN INDEPENDENT SCHOOL DISTRICT
Office of Research and Evaluation

September 17, 1979

Dear Teacher:

Currently the Texas Education Agency allows only one procedure for the identification of students eligible for Title I services. We are exploring the possibility that a better way might exist. Please help us in this endeavor by providing the information requested below. It will take only a small amount of your time, but it will provide us with some valuable information. The information is important even if your school does not have a Title I Program.

Your estimate of this student's reading achievement is confidential information. Please seal the form in the attached envelope and return it to ORE through the interschool mail.

Sincerely,

Jonathan Curtis

Jonathan Curtis, Ph.D.
Senior Evaluator for Compensatory
Education Programs

Instructions

Considering all of the information you have on the child listed below, make your best estimate of that boy's or girl's current reading level by indicating the range of percentile scores within which you would expect the child to score on the CAT Reading test.

Student: ____________________

1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	90-99

Percentile Ranges

AUSTIN INDEPENDENT SCHOOL DISTRICT
Office of Research and Evaluation

September 18, 1979

TO: Principals

JC

FROM: Jonathan Curtis, Senior Evaluator for Compensatory Education Programs

SUBJECT: Summer School Posttesting and Make-Ups for Title I Migrant Students

Attached to this memo is the final list of the students to be tested during the week of October 1-5. Next to each student's name and identification number is the level of the CAT with which the student should be tested. In most instances, the students should be tested with the same level of the test with which they were tested last spring.

Also accompanying this memo are the test materials and instructions for each level of the CAT. Should you have any questions about the directions or need additional materials, call Kim Walker-Wheatley at 458-1228 for assistance. All test materials and answer books/sheets should be returned no later than October 12 via school mail to:

Kim Walker-Wheatley
ORE
Administration Bldg., Box 79

Approved: Freda M Holley
Director, Research and Evaluation

Approved: __________
Director, Elementary Education

PT:rrf

cc: Lee Laws
Oscar Cantu
Jose Mata

Attachments: List of Students to be Tested
Test Instructions
Test Materials

TEACHER CHECKLIST — LEVEL 1

Students in grade 2 should be given the Reading Section of the CAT level 1.

BEFORE TESTING

______1. READ THESE INSTRUCTIONS: This memo provides an overview of what must be done.

______2. READ THE TEST MANUAL: Reading the test manual allows you to become familiar with this particular test and helps you discover questions concerning the test procedure before the actual testing session. It is not necessary to read the entire manual, but pages 11-14, 16-28 must be closely read and thoroughly understood.

______3. DETERMINE WHEN AND WHERE TESTS ARE TO BE ADMINISTERED: According to the manual, the administration of the Reading Section takes approximately 67 minutes.

a. 10 minutes for preliminary activities: completing identifying data on test booklets and general directions for testing.

b. 37 minutes for the Vocabulary subtest.

c. 20 minutes for the Reading Comprehension subtest.

The time and place of the testing is up to the discretion of the teacher and the principal.

______4. PREPARE STUDENTS FOR TESTING: In preparing the students for testing, keep the following points in mind.

a. Test results are used to help school staffs in planning and evaluating programs; they are not used to determine grades.

b. Few students can correctly answer all or even most of the questions on these tests. The important thing is for each student to show the schools those questions for which the student does know the correct answer.

c. Don't overly emphasize the seriousness of taking the test, but don't belittle the test either. Teacher attitude is critical; if teachers take the tests seriously, it is more likely that students will try their best.

d. The students should answer all questions on the tests even if they are not sure of the answer. This, of course, does not mean that they should answer the test questions randomly, but they should indicate their best guess as to the answer when they are not sure.

e. Remind students to bring two No. 2 pencils.

______5. REVIEW THE TEST MANUAL PRIOR TO ADMINISTERING THE TEST.

THE DAY OF TESTING

______6. MATERIALS NECESSARY FOR ADMINISTRATION:

___a. Sufficient test booklets.
___b. Extra No. 2 pencils.
___c. A stop watch or other timepiece with a second hand.
___d. Scratch paper (for the Comprehension subtest).
___e. Sign for your door reading "TESTING, DO NOT DISTURB."

______7. COMPLETING STUDENT DATA ON TEST BOOKLETS: Supervise the students as they record the following information on the back of their test booklets:

___a. Name.
___b. Grade.
___c. Teacher's name.
___d. Test date.
(See "After Testing" for information on student identification numbers.)

______8. ADMINISTRATION: Administer the tests following the directions on pages 17-28 of the manual. When administering the tests, remember:

a. You may repeat pretest instructions or rephrase instructions if necessary to insure that students understand what is to be done. (How to mark the booklet, etc.).

b. You may not rephrase the test questions, explain what a word in a test question means, etc. (Otherwise, the percentile scores will not correctly indicate student achievement levels).

c. Allow students exactly the time prescribed.

d. Take note during the testing periods of any abnormal student behaviors which may invalidate the student's test scores. Wait a few days and readminister the test to that student.

AFTER TESTING

_____9. Fill in the student's AISD identification number on the back of the student's test booklet. The identification number should be written under the teacher's name. *It is very important all identification numbers are accurate and legible*.

_____10. MAKE-UP TESTING: Arrangements must be made so that students who missed one or more subtests can be tested. Make-up testing, like all standardized testing, must be done in a quiet area free from distractions. Someone must be present to monitor the students.

_____11. RETURN OF COMPLETED MATERIALS: All testing materials must be returned to ORE by October 12. All materials should be returned via school mail to:

Kim Walker-Wheatley
ORE
Administration Building, Box 79

Do not retain test materials to complete make-up testing after October 12. Do whatever make-up testing you can, but have all materials returned to ORE by October 12.

TEACHER CHECKLIST — LEVEL 2

Students in grades 3 and 4 should be given the Reading Section of the CAT level 2. Some students in grade 5 will also be given the CAT level 2. Check the student roster to determine which fifth-grade students should be tested with this level.

BEFORE TESTING

______ 1. READ THESE INSTRUCTIONS: This memo provides an overview of what must be done.

______ 2. READ THE TEST MANUAL: Reading the test manual allows you to become familiar with this particular test and helps you discover questions concerning the test procedure before the actual testing session. It is not necessary to read the entire manual, but pages 11-14, 18-24 must be closely read and thoroughly understood.

______ 3. DETERMINE WHEN AND WHERE TESTS ARE TO BE ADMINISTERED: According to the manual, the administration of the Reading Section takes approximately 70 minutes.

  a. 20 minutes for preliminary activities: completing identifying data on test booklets and general directions for testing.

  b. 20 minutes for the Vocabulary subtest.

  c. 30 minutes for the Reading Comprehension subtest.

The time and place of the testing is up to the discretion of the teacher and the principal.

______ 4. PREPARE STUDENTS FOR TESTING: In preparing the students for testing, keep the following points in mind.

  a. Test results are used to help school staffs in planning and evaluating programs; they are not used to determine grades.

  b. Few students can correctly answer all or even most of the questions on these tests. The important thing is for each student to show the schools those questions for which the student does know the correct answer.

c. Don't overly emphasize the seriousness of taking the test, but don't belittle the test either. Teacher attitude is critical; if teachers take the tests seriously, it is more likely that students will try their best.

d. The students should answer all questions on the tests even if they are not sure of the answer. This, of course, does not mean that they should answer the test questions randomly, but they should indicate their best guess as to the answer when they are not sure.

e. Remind students to bring two No. 2 pencils.

______5. REVIEW THE TEST MANUAL PRIOR TO ADMINISTERING THE TEST:

THE DAY OF TESTING

______6. MATERIALS NECESSARY FOR ADMINISTRATION:

___a. Sufficient test booklets.
___b. Extra No. 2 pencils.
___c. A stop watch or other timepiece with a second hand.
___d. Scratch paper (for the Comprehension subtest).
___e. Sign for your door reading "TESTING, DO NOT DISTURB."

______7. COMPLETING STUDENT DATA ON TEST BOOKLETS: Supervise the students as they record the following information on the back of their test booklets:

___a. Name.
___b. Grade.
___c. Teacher's name.
___d. Test date.
(See "After Testing" for information on student identification numbers.)

______8. ADMINISTRATION: Administer the tests following the directions on pages 19-24 of the manual. When administering the tests, remember:

a. You may repeat pretest instructions or rephrase instructions if necessary to insure that students understand what is to be done. (How to mark the booklet, etc.).

b. You may not rephrase the test questions, explain what a word in a test question means, etc. (Otherwise, the percentile scores will not correctly indicate student achievement levels).

c. Allow students exactly the time prescribed.

d. Take note during the testing periods of any abnormal student behaviors which may invalidate the student's test scores. Wait a few days and readminister the test to that student.

AFTER TESTING

_____ 9. Fill in the student's AISD identification number on the back of the student's test booklet. The identification number should be written under the teacher's name. *It is very important all identification numbers are accurate and legible.*

_____ 10. MAKE-UP TESTING: Arrangements must be made so that students who missed one or more subtests can be tested. Make-up testing, like all standardized testing, must be done in a quiet area free from distractions. Someone must be present to monitor the students.

_____ 11. RETURN OF COMPLETED MATERIALS: ALL testing materials must be returned to ORE by October 12. All materials should be returned via school mail to:

Kim Walker-Wheatley
ORE
Administration Building, Box 79

Do not retain test materials to complete make-up testing after October 12. Do whatever make-up testing you can, but have all materials returned to ORE by October 12.

TEACHER CHECKLIST — LEVEL 3

Some students in grade 5 should be given the Reading Section of the CAT level 3. Check the student roster to determine which fifth-grade students should be tested with this level.

BEFORE TESTING

______1. READ THESE INSTRUCTIONS: This memo provides an overview of what must be done.

______2. READ THE TEST MANUAL: Reading the test manual allows you to become familiar with this particular test and helps you discover questions concerning the test procedure before the actual testing session. It is not necessary to read the entire manual, but pages 10-14, 15-20 must be closely read and thoroughly understood.

______3. DETERMINE WHEN AND WHERE TESTS ARE TO BE ADMINISTERED: According to the manual, the administration of the Reading Section takes approximately 73 minutes.

a. 20 minutes for preliminary activities: completing identifying data on test booklets and general directions for testing.

b. 15 minutes for the Vocabulary subtest.

c. 38 minutes for the Reading Comprehension subtest.

The time and place of the testing is up to the discretion of the teacher and the principal.

______4. PREPARE STUDENTS FOR TESTING: In preparing the students for testing, keep the following points in mind.

a. Test results are used to help school staffs in planning and evaluating programs; they are not used to determine grades.

b. Few students can correctly answer all or even most of the questions on these tests. The important thing is for each student to show the schools those questions for which the student does know the correct answer.

c. Don't overly emphasize the seriousness of taking the test, but don't belittle the test either. Teacher attitude is critical; if teachers take the tests seriously, it is more likely that students will try their best.

d. The students should answer all questions on the tests even if they are not sure of the answer. This, of course, does not mean that they should answer the test questions randomly, but they should indicate their best guess as to the answer when they are not sure.

e. Remind students to bring two No. 2 pencils.

_____5. REVIEW THE TEST MANUAL PRIOR TO ADMINISTERING THE TEST:

THE DAY OF TESTING

_____6. MATERIALS NECESSARY FOR ADMINISTRATION:

- ___a. Sufficient test booklets.
- ___b. Extra No. 2 pencils.
- ___c. A stop watch or other timepiece with a second hand.
- ___d. Scratch paper (for the Comprehension subtest).
- ___e. Sign for your door reading "TESTING, DO NOT DISTURB."

_____7. COMPLETING STUDENT DATA ON TEST BOOKLETS: Supervise the students as they record the following information on the back of their test booklets:

- ___a. Name.
- ___b. Grade.
- ___c. Teacher's name.
- ___d. Test date.
  (See "After Testing" for information on student identification numbers.)

_____8. ADMINISTRATION: Administer the tests following the directions on pages 15-20 of the manual. When administering the tests, remember:

a. You may repeat pretest instructions or rephrase instructions if necessary to insure that students understand what is to be done. (How to mark the booklet, etc.).

b. You may not rephrase the test questions, explain what a word in a test question means, etc. (Otherwise, the percentile scores will not correctly indicate student achievement levels).

c. Allow students exactly the time prescribed.

d. Take note during the testing periods of any abnormal student behaviors which may invalidate the student's test scores. Wait a few days and readminister the test to that student.

______9. Fill in the student's AISD identification number on the back of the student's test booklet. The identification number should be written under the teacher's name. *It is very important all identification numbers are accurate and legible.*

_____10. MAKE-UP TESTING: Arrangements must be made so that students who missed one or more subtests can be tested. Make-up testing, like all standardized testing, must be done in a quiet area free from distractions. Someone must be present to monitor the students.

_____11. RETURN OF COMPLETED MATERIALS: ALL testing materials must be returned to ORE by October 12. All materials should be returned via school mail to:

Kim Walker-Wheatley
ORE
Administration Building, Box 79

Do not retain test materials to complete make-up testing after October 12. Do whatever make-up testing you can, but have all materials returned to ORE by October 12.

Comparison of Summer School and Control Students on CAT Pretest Raw Scores By Grade

Analysis Technique

Independent *t*-tests using Program ANOVAR of the EDSTAT package. The *t* values in text are the square root of the F values in this attachment. Results are presented in tabular form in Figure A-3.

Students

All pairs of summer school and comparison students with both pre- and posttest scores.

```
*** OUTPUT FROM PROGRAM ANOVAR ***

UMMER SCHOOL VS CONTROL STUDENTS -- GRADE 2 1979 -- RAW SCORE -- IND-TTEST

ARAMETERS
OL  1- 5 =      1
COL  6-10 =      2
COL 11-15 =      1
OL 16-20 =      0
COL 21-25 =      0

ATA FORMAT = (A4,3F5.0)

GROUP 1    21 SUBJECTS.  CONTROL STUDENTS

ROUP 2    21 SUBJECTS.  SUMMER SCHOOL STUDENTS


NALYSIS FOR VARIABLE  1

OURCE      MEAN SQUARE     D.F.     F-RATIO        P

TOTAL         228.8897      41.

GROUPS          7.7143       1.       0.033      0.8511

ERROR (G)     234.4190      40.

G MEAN           1           2
              74.2381     73.3810
```

```
   *** OUTPUT FROM PROGRAM ANOVAR ***

SUMMER SCHOOL VS CONTROL STUDENTS -- GRADE 3 1979 -- RAW SCORE -- IND-TTEST

ARAMETERS
 OL  1- 5 =      1
COL  6-10 =      2
COL 11-15 =      1
 OL 16-20 =      0
COL 21-25 =      0

ATA FORMAT = (A4,F5.0)

GROUP 1    37 SUBJECTS.  CONTROL STUDENTS

 ROUP 2    37 SUBJECTS.  SUMMER SCHOOL STUDENTS


ANALYSIS FOR VARIABLE  1

 OURCE      MEAN SQUARE      D.F.     F-RATIO         P

TOTAL          226.6251       73.

 GROUPS         11.3649        1.       0.049      0.8192

 ERROR (G)     229.6149       72.

G MEAN             1           2
                43.0000     42.2162
```

```
    *** OUTPUT FROM PROGRAM ANOVAR ***

UMMER SCHOOL VS CONTROL STUDENTS -- GRADE 4 1979 -- RAW SCORE -- IND-TTEST

ARAMETERS
OL   1- 5 =      1
COL  6-10 =      2
COL 11-15 =      1
OL  16-20 =      0
OL  21-25 =      0

ATA FORMAT = (A4,F5.0)

GROUP 1    33 SUBJECTS.  CONTROL STUDENTS

ROUP 2     33 SUBJECTS.  SUMMER SCHOOL STUDENTS


NALYSIS FOR VARIABLE  1

OURCE       MEAN SQUARE      D.F.      F-RATIO        P

TOTAL          290.4375       65.

 GROUPS          9.4697        1.        0.032      0.8526

 ERROR (G)     294.8277       64.

G MEAN            1          2
               58.1818    57.4242
```

Attachment A-3
(page 5 of 5)

```
      79.16
    *** OUTPUT FROM PROGRAM ANOVAR ***

SUMMER SCHOOL VS CONTROL STUDENTS -- GRADE 5 1979 -- RAW SCORE -- IND-TTEST

ARAMETERS
OL   1- 5 =       1
COL  6-10 =       2
CL  11-15 =       1
OL  16-20 =       0
COL 21-25 =       0

ATA FORMAT = (A4,F5.0)

GROUP 1     22 SUBJECTS.  CONTROL STUDENTS

ROUP 2      22 SUBJECTS.  SUMMER SCHOOL STUDENTS


ANALYSIS FOR VARIABLE  1

OURCE       MEAN SQUARE      D.F.      F-RATIO        P

TOTAL          102.7077       43.

GROUPS           0.0227        1.       0.000      0.9854

ERROR (G)      105.1526       42.

 MEAN             1            2
                30.8636      30.9091
```

Comparison of Summer School and Control Students on CAT Pretest Scores (ADSS) By Program

Analysis Technique

Independent *t*-tests using program ANOVAR of the EDSTAT package. The *t* values in the text are the square root of the F values in this attachment. Results are presented in tabular form in Figure A-4.

Students

All pairs of summer school and comparison students with both pre- and posttest scores.

79.16

Attachment A-4
(page 2 of 5)

```
    *** OUTPUT FROM PROGRAM ANOVAR ***

ITLE I SUMMER SCHOOL VS CONTROL STUDENTS -- ALL GRADES -- ADSS SCORES -- IND-T

ARAMETERS
OL   1- 5 =      1
COL  6-10 =      2
OL  11-15 =      1
OL  16-20 =      0
COL 21-25 =      0

ATA FORMAT = (A4,3F5.0)

GROUP 1    46 SUBJECTS.  TITLE I SUMMER SCHOOL STUDENTS

ROUP 2    46 SUBJECTS.  TITLE I CONTROL STUDENTS


ANALYSIS FOR VARIABLE  1

OURCE      MEAN SQUARE     D.F.     F-RATIO        P

TOTAL        2139.3726      91.

 GROUPS       267.9239       1.       0.124     0.7258

ERROR (G)   2160.1664      90.

G MEAN             1          2
              312.3261   315.7391
```

79.16

Attachment A-4
(page 3 of 5)

```
    *** OUTPUT FROM PROGRAM ANOVAR ***

IGRANT SUMMER SCHOOL VS CONTROL STUDENTS -- ALL GRADES -- ADSS SCORES -- IND-T

ARAMETERS
OL  1- 5 =      1
COL  6-10 =      2
COL 11-15 =      1
OL 16-20 =      0
COL 21-25 =      0

ATA FORMAT = (A4,3F5.0)

GROUP 1    36 SUBJECTS.  MIGRANT SUMMER SCHOOL STUDENTS

ROUP 2    36 SUBJECTS.  MIGRANT CONTROL STUDENTS


NALYSIS FOR VARIABLE  1

OURCE      MEAN SQUARE     D.F.     F-RATIO        P

TOTAL        3443.9804      71.

GROUPS          0.8889       1.       0.000     0.9846

ERROR (G)    3493.1675      70.

G MEAN              1         2
             322.7500   322.5278
```

Attachment A-4
(page 4 of 5)

```
      79.16
    *** OUTPUT FROM PROGRAM ANOVAR ***
LOCAL SUMMER SCHOOL VS CONTROL STUDENTS -- ALL GRADES -- ADSS SCORES -- IND-T

ARAMETERS
OL   1- 5 =      1
COL  6-10 =      2
OL  11-15 =      1
OL  16-20 =      0
COL 21-25 =      0

ATA FORMAT = (A4,3F5.0)

GROUP 1    31 SUBJECTS.  LOCAL SUMMER SCHOOL STUDENTS

ROUP 2     31 SUBJECTS.  LOCAL CONTROL STUDENTS


ANALYSIS FOR VARIABLE  1

OURCE      MEAN SQUARE      D.F.      F-RATIO        P

TOTAL        2404.4114       61.

GROUPS         16.5161        1.        0.007     0.9325

ERROR (G)    2444.2097       60.

G MEAN             1           2
              342.0645    343.0968
```

79.16

```
*** OUTPUT FROM PROGRAM ANOVAR ***

SUMMER SCHOOL VS CONTROL STUDENTS -- ALL GRADES -- ADSS SCORES -- IND-TTEST

PARAMETERS
COL  1- 5 =     1
COL  6-10 =     2
COL 11-15 =     1
COL 16-20 =     0
COL 21-25 =     0

DATA FORMAT = (A4,3F5.0)

GROUP 1   113 SUBJECTS.  CONTROL STUDENTS

GROUP 2   113 SUBJECTS.  SUMMER SCHOOL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE     MEAN SQUARE     D.F.      F-RATIO        P

TOTAL        2739.8665     225.

 GROUPS       144.9602       1.        0.053     0.8136

 ERROR (G)   2751.4509     224.

G MEAN               1          2
              325.4071   323.8053
```

Comparison of Summer School and Control Students on Posttest Scores (ADSS) By Program

Analysis Technique

Independent *t*-tests using program ANOVAR of the EDSTAT package. The *t* values in the text are the square root of the F values in this attachment. Results are presented in tabular form in Figure A-5.

Students

All pairs of summer school and control students with both pre- and posttest scores.

79.16

Attachment A-5
(page 2 of 5)

```
   *** OUTPUT FROM PROGRAM ANOVAR ***

 TLE I VS CONTROL STUDENTS -- ADSS SCORES -- ALL GRADES -- POSTTTEST

 RAMETERS
 L  1- 5 =       1
COL  6-10 =      2
COL 11-15 =      1
 L 16-20 =       0
 L 21-25 =       0

 TA FORMAT = (A4,F5.0)

GROUP 1     46 SUBJECTS.  SUMMER SCHOOL STUDENTS

  OUP 2     46 SUBJECTS.  CONTROL STUDENTS


 ALYSIS FOR VARIABLE  1

 URCE       MEAN SQUARE      D.F.      F-RATIO        P

TOTAL         2706.7363       91.

 ROUPS         136.3478        1.        0.050      0.8185

 ERROR (G)    2735.2961       90.

  MEAN              1          2
               319.2826   321.7174
```

79.16

Attachment A-5
(page 3 of 5)

```
    *** OUTPUT FROM PROGRAM ANOVAR ***

 GRANT VS CONTROL STUDENTS -- ADSS SCORES -- ALL GRADES -- POSTTEST

 RAMETERS
  L  1- 5 =      1
COL  6-10 =      2
COL 11-15 =      1
  L 16-20 =      0
  L 21-25 =      0

 TA FORMAT = (A4,F5.0)

GROUP 1     36 SUBJECTS.  SUMMER SCHOOL STUDENTS

 OUP 2      36 SUBJECTS.  CONTROL STUDENTS


 ALYSIS FOR VARIABLE  1

 URCE      MEAN SQUARE     D.F.      F-RATIO         P

TOTAL        3300.3279      71.

 ROUPS        200.0000       1.        0.060      0.8028

 ERROR (G)   3344.6183      70.

G MEAN           1          2
              333.4722   330.1389
```

79.16

Attachment A-5
(page 4 of 5)

```
    *** OUTPUT FROM PROGRAM ANOVAR ***

ITON PAID VS CONTROL STUDENTS -- ADSS SCORES -- ALL GRADES -- POSTTEST

RAMETERS
L   1- 5 =       1
COL   6-10 =       2
COL  11-15 =       1
L  16-20 =       0
COL  21-25 =       0

TA FORMAT = (A4,F5.0)

GROUP 1     31 SUBJECTS.  SUMMER SCHOOL STUDENTS

OUP 2     31 SUBJECTS.  CONTROL STUDENTS


NALYSIS FOR VARIABLE  1

URCE      MEAN SQUARE      D.F.      F-RATIO         P

TOTAL        3243.7866       61.

ROUPS          24.5323        1.        0.007      0.9291

RROR (G)    3297.4409       60.

G MEAN           1          2
             353.3548   354.6129
```

79.16

Attachment A-5
(page 5 of 5)

```
    *** OUTPUT FROM PROGRAM ANOVAR ***

 MMER SCHOOL VS CONTROL STUDENTS -- ALL GRADES -- ADSS SCORES -- POSTTTEST

 RAMETERS
C L   1- 5 =      1
COL   6-10 =      2
C L  11-15 =      1
  L  16-20 =      0
C L  21-25 =      0

 TA FORMAT = (A4,F5.0)

GROUP 1    113 SUBJECTS.  CONTROL STUDENTS

 OUP 2    113 SUBJECTS.  SUMMER SCHOOL STUDENTS


 ALYSIS FOR VARIABLE  1

 URCE       MEAN SQUARE      D.F.      F-RATIO          P

TOTAL         3201.1836      225.

 ROUPS           4.2522        1.        0.001       0.9698

 RRROR (G)    3215.4556      224.

G MEAN            1           2
              333.4248    333.1504
```

Comparison of Pre- and Posttest Raw Scores By Grade

Analysis Tecnhique

Correlated *t*-tests using program ANOVAR of the EDSTAT package. The *t* values in the text are the square root of the F values in this attachment. Results are presented in tabular form in Figure A-6.

Students

All pairs of summer school and control students with both pre- and posttest scores.

```
    *** OUTPUT FROM PROGRAM ANOVAR ***

SUMMER SCHOOL STUDENTS -- GRADE 2 -- RAW SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =     1
COL  6-10 =     1
COL 11-15 =     2
COL 16-20 =     0
COL 21-25 =     0

DATA FORMAT = (A4,2F5.0)

GROUP 1    21 SUBJECTS.  SUMMER SCHOOL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE      MEAN SQUARE     D.F.     F-RATIO        P

TOTAL          290.1911      41.

 TRIALS        133.9286       1.       2.376     0.1356

 ERROR (T)      56.3786      20.

T MEAN            1          2
               73.3810    76.9524
```

```
      *** OUTPUT FROM PROGRAM ANOVAR ***

CONTROL STUDENTS -- GRADE 2 -- RAW SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =      1
COL  6-10 =      1
COL 11-15 =      2
COL 16-20 =      0
COL 21-25 =      0

DATA FORMAT = (A4,2F5.0)

GROUP 1     21 SUBJECTS.  CONTROL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE      MEAN SQUARE      D.F.      F-RATIO        P

TOTAL          212.5830       41.

 TRIALS         21.4286        1.        0.455      0.5143

 ERROR (T)      47.1286       20.

T MEAN              1           2
              74.2381     75.6667
```

```
    *** OUTPUT FROM PROGRAM ANOVAR ***

SUMMER SCHOOL STUDENTS -- GRADE 3 -- RAW SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =      1
COL  6-10 =      1
COL 11-15 =      2
COL 16-20 =      0
COL 21-25 =      0

DATA FORMAT = (A4,2F5.0)

GROUP 1    37 SUBJECTS.  SUMMER SCHOOL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE      MEAN SQUARE     D.F.     F-RATIO       P

TOTAL          219.4019      73.

 TRIALS         35.1486       1.       0.844     0.3672

 ERROR (T)      41.6209      36.

T MEAN              1          2
              42.2162    43.5946
```

```
*** OUTPUT FROM PROGRAM ANOVAR ***

CONTROL STUDENTS -- GRADE 3 -- RAW SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =      1
COL  6-10 =      1
COL 11-15 =      2
COL 16-20 =      0
COL 21-25 =      0

DATA FORMAT = (A4,2F5.0)

GROUP 1    37 SUBJECTS.  CONTROL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE     MEAN SQUARE     D.F.     F-RATIO        P

TOTAL         243.2101      73.

 TRIALS        60.6622       1.       1.908     0.1726

 ERROR (T)     31.8011      36.

T MEAN            1          2
              43.0000    44.8108
```

```
    *** OUTPUT FROM PROGRAM ANOVAR ***

SUMMER SCHOOL STUDENTS -- GRADE 4 -- RAW SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =     1
COL  6-10 =     1
COL 11-15 =     2
COL 16-20 =     0
COL 21-25 =     0

DATA FORMAT = (A4,2F5.0)

GROUP 1    33 SUBJECTS.  SUMMER SCHOOL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE     MEAN SQUARE     D.F.     F-RATIO        P

TOTAL          302.0998     65.

 TRIALS         78.5455      1.       4.131      0.0478

 ERROR (T)      19.0142     32.

T MEAN              1          2
              57.4242    59.6061
    *** OUTPUT FROM PROGRAM ANOVAR ***

CONTROL STUDENTS -- GRADE 4 -- RAW SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =     1
COL  6-10 =     1
COL 11-15 =     2
COL 16-20 =     0
COL 21-25 =     0

DATA FORMAT = (A4,2F5.0)

GROUP 1    33 SUBJECTS.  CONTROL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE      MEAN SQUARE      D.F.      F-RATIO        P

TOTAL          266.2921       65.

 TRIALS        142.5606        1.        5.739      0.0214

 ERROR (T)      24.8419       32.

T MEAN              1          2
              58.1818    61.1212
```

```
*** OUTPUT FROM PROGRAM ANOVAR ***

SUMMER SCHOOL STUDENTS -- GRADE 5 -- RAW SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =      1
COL  6-10 =      1
COL 11-15 =      2
COL 16-20 =      0
COL 21-25 =      0

DATA FORMAT = (A4,2F5.0)

GROUP 1    22 SUBJECTS.  SUMMER SCHOOL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE      MEAN SQUARE      D.F.      F-RATIO        P

TOTAL          130.9022       43.

 TRIALS        205.1136        1.       9.781      0.0052

 ERROR (T)      20.9708       21.

T MEAN             1          2
             30.9091    35.2273
```

```
*** OUTPUT FROM PROGRAM ANOVAR ***

TITLE I SUMMER SCHOOL STUDENTS -- ALL GRADES -- ADSS SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =     1
COL  6-10 =     1
COL 11-15 =     2
COL 16-20 =     0
COL 21-25 =     0

DATA FORMAT = (97X,A2,2F4.0)

GROUP 1    46 SUBJECTS.  TIT.E I SUMMER SCHOOL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE      MEAN SQUARE      D.F.      F-RATIO         P

TOTAL         2603.3020       91.

 TRIALS       1113.0435        1.        2.985      0.0872

 ERROR (T)     372.9324       45.

T MEAN                1          2
               312.3261   319.2826
```

```
    *** OUTPUT FROM PROGRAM ANOVAR ***

TITLE I CONTROL STUDENTS -- ALL GRADES -- ADSS SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =     1
COL  6-10 =     1
COL 11-15 =     2
COL 16-20 =     0
COL 21-25 =     0

DATA FORMAT = (97X,A2,2F4.0)

GROUP 1    46 SUBJECTS.  TITLE I CONTROL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE      MEAN SQUARE      D.F.     F-RATIO        P

TOTAL         2259.6286       91.

 TRIALS        822.0109        1.       2.282     0.1341

 ERROR (T)     360.1442       45.

T MEAN              1          2
               315.7391   321.7174
```

```
*** OUTPUT FROM PROGRAM ANOVAR ***

MIGRANT SUMMER SCHOOL STUDENTS -- ALL GRADES -- ADSS SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =      1
COL  6-10 =      1
COL 11-15 =      2
COL 16-20 =      0
COL 21-25 =      0

DATA FORMAT = (97X,A2,2F4.0)

GROUP 1    36 SUBJECTS.  MIGRANT SUMMER SCHOOL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE      MEAN SQUARE      D.F.      F-RATIO       P

TOTAL         3638.8607       71.

 TRIALS       2069.3889        1.        6.442     0.0150

 ERROR (T)     321.2175       35.

T MEAN              1          2
             322.7500   333.4722
```

```
    *** OUTPUT FROM PROGRAM ANOVAR ***

MIGRANT CONTROL STUDENTS -- ALL GRADES -- ADSS SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =     1
COL  6-10 =     1
COL 11-15 =     2
COL 16-20 =     0
COL 21-25 =     0

DATA FORMAT = (97X,A2,2F4.0)

GROUP 1    36 SUBJECTS.  MIGRANT CONTROL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE       MEAN SQUARE      D.F.      F-RATIO         P

TOTAL          3146.4507       71.

 TRIALS        1042.7222        1.        2.552      0.1155

 ERROR (T)      408.6651       35.

T MEAN                 1          2
                322.5278   330.1389
    *** OUTPUT FROM PROGRAM ANOVAR ***

LOCAL SUMMER SCHOOL STUDENTS -- ALL GRADES -- ADSS SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =      1
COL  6-10 =      1
COL 11-15 =      2
COL 16-20 =      0
COL 21-25 =      0

DATA FORMAT = (97X,A2,2F4.0)

GROUP 1    31 SUBJECTS.  LOCAL SUMMER SCHOOL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE      MEAN SQUARE      D.F.      F-RATIO        P

TOTAL         2545.4225       61.

 TRIALS       1975.8065        1.        3.766     0.0588

 ERROR (T)     524.6065       30.

T MEAN                1          2
               342.0645   353.3548
```

```
*** OUTPUT FROM PROGRAM ANOVAR ***

LOCAL CONTROL STUDENTS -- ALL GRADES -- ADSS SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =      1
COL  6-10 =      1
COL 11-15 =      2
COL 16-20 =      0
COL 21-25 =      0

DATA FORMAT = (97X,A2,2F4.0)

GROUP 1    31 SUBJECTS.  LOCAL CONTROL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE      MEAN SQUARE      D.F.     F-RATIO        P

TOTAL         3168.1917       61.

 TRIALS       2055.6290        1.        5.345     0.0263

 ERROR (T)     384.5957       30.

T MEAN              1          2
              343.0968   354.6129
```

```
*** OUTPUT FROM PROGRAM ANOVAR ***

SUMMER SCHOOL STUDENTS — ALL GRADES — ADSS SCORES — CORRELATED T-TEST

PARAMETERS
COL  1- 5 =     1
COL  6-10 =     1
COL 11-15 =     2
COL 16-20 =     0
COL 21-25 =     0

DATA FORMAT = (A4,2F5.0)

GROUP 1   113 SUBJECTS.  SUMMER SCHOOL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE     MEAN SQUARE     D.F.     F-RATIO        P

TOTAL        3058.8817     225.

 TRIALS      4934.2301       1.      12.564     0.0009

 ERROR (T)    392.7390     112.

T MEAN            1          2
               323.8053   333.1504
```

```
    *** OUTPUT FROM PROGRAM ANOVAR ***

CONTROL STUDENTS -- ALL GRADES -- ADSS SCORES -- CORRELATED T-TEST

PARAMETERS
COL  1- 5 =      1
COL  6-10 =      1
COL 11-15 =      2
COL 16-20 =      0
COL 21-25 =      0

DATA FORMAT = (A4,2F5.0)

GROUP 1   113 SUBJECTS.  CONTROL STUDENTS


ANALYSIS FOR VARIABLE  1

SOURCE      MEAN SQUARE      D.F.      F-RATIO         P

TOTAL        2919.5773       225.

 TRIALS      3632.0177         1.        9.609      0.0028

 ERROR (T)    377.9998       112.

T MEAN            1            2
             325.4071     333.4248
```

Comparison of Gains Made By Summer School and Control Students By Grade

Analysis Technique

Analyses equivalent to the slopes and intercepts tests in the analysis of covariance were done using program REGRAN of the EDSTAT package. The three linear models used are described below.

Model 1: $Y = a_0U + a_1X^{(1)} + a_2X^{(2)} + a_3X^{(4)} + E$

Model 2: $Y = a_4U + a_5X^{(3)} + a_6X^{(4)} + E$

Model 3: $Y = a_7U + a_8X^{(3)} + E$

The vectors used to define the models were as follows:

Y	was posttest raw score.
U	was the unit vector.
$X^{(1)}$	was pretest raw score if the student attended summer school; 0, if control.
$X^{(2)}$	was pretest raw score if the student was a control; 0, otherwise.
$X^{(3)}$	was pretest raw score.
$X^{(4)}$	was 1 if the student attended summer school; 0, otherwise.

The variables in the analyses on the following pages represent the vectors above according to the list below.

Vector	Variable
Y	1
$X^{(1)}$	2
$X^{(2)}$	3
$X^{(3)}$	4
$X^{(4)}$	5

Students

All pairs of summer school and control students with both pre- and posttest scores.

```
     *** OUTPUT FROM PROGRAM REGRAN ***

SUMMER SCHOOL VS CONTROL STUDENTS -- 1979 -- GRADE 2 -- RAW SCORE -- CAT

PARAMETERS
COL  1- 5 =     5
COL  6-10 =    42
COL 11-15 =     3
COL 16-20 =     2
COL 21-25 =     1

DATA FORMAT = (A4,5F5.0)


INTERCORRELATION ANALYSIS.


MEANS               1          2          3          4          5
              76.3095    36.6905    37.1190    73.8095     0.5000


SIGMAS              1          2          3          4          5
              16.2561    38.3632    38.4127    14.9479     0.5000


R MATRIX            1          2          3          4          5

       1       1.0000     0.2193     0.0916     0.7983     0.0395

       2       0.2193     1.0000    -0.9242     0.1915     0.9564

       3       0.0916    -0.9242     1.0000     0.1979    -0.9663

       4       0.7983     0.1915     0.1979     1.0000    -0.0287

       5       0.0395     0.9564    -0.9663    -0.0287     1.0000
```

```
MODEL  1 M1  CRITERION =  1

PREDICTORS =  2- 3  5- 5

R = 0.8013     RSQ = 0.6420        14 ITERATIONS.

  V      BETA       B
  2    2.0935    0.8871
  3    2.0056    0.8488
  5   -0.0215   -0.6983
REG. CONST. =   12.6053


MODEL  2 M2  CRITERION =  1

PREDICTORS =  4- 5

R = 0.8008     RSQ = 0.6412         2 ITERATIONS.

  V      BETA       B
  4    0.8001    0.8701
  5    0.0625    2.0315
REG. CONST. =   11.0695


MODEL  3 M3  CRITERION =  1

PREDICTORS =  4- 4

R = 0.7983     RSQ = 0.6373         1 ITERATIONS.

  V      BETA       B
  4    0.7983    0.8682
REG. CONST. =   12.2291


F-TEST  1   SUMMER SCHOOL VS CONTROL STUDENTS -- CAT -- M1 VS M2
RSQ FULL =     0.6420      MODEL  1
RSQ REDUCED = 0.6412      MODEL  2
DIFFERENCE =  0.0008
DFN =  1.      DFD =    38.      F-RATIO =    0.088    P = 0.7652


F-TEST  2   SUMMER SCHOOL VS CONTROL STUDENTS -- CAT -- M2 VS M3
RSQ FULL =     0.6412      MODEL  2
RSQ REDUCED = 0.6373      MODEL  3
DIFFERENCE =  0.0039
DFN =  1.      DFD =    39.      F-RATIO =    0.424    P = 0.5256
```

```
*** OUTPUT FROM PROGRAM REGRAN ***

SUMMER SCHOOL VS CONTROL STUDENTS -- 1979 -- GRADE 3 -- RAW SCORE -- CAT

PARAMETERS
COL  1- 5 =    5
COL  6-10 =   74
COL 11-15 =    3
COL 16-20 =    2
COL 21-25 =    1

DATA FORMAT = (A4,5F5.0)

INTERCORRELATION ANALYSIS.

MEANS            1          2          3          4          5
             44.2027    21.1081    21.5000    42.6081     0.5000

SIGMAS           1          2          3          4          5
             15.2324    23.6618    23.9025    14.9520     0.5000

R MATRIX         1          2          3          4          5

      1       1.0000     0.2078     0.3218     0.8432    -0.0399

      2       0.2078     1.0000    -0.8024     0.2998     0.8921

      3       0.3218    -0.8024     1.0000     0.3288    -0.8995

      4       0.8432     0.2998     0.3288     1.0000    -0.0262

      5      -0.0399     0.8921    -0.8995    -0.0262     1.0000
```

```
MODEL  1 M1  CRITERION =  1

PREDICTORS =  2- 3  5- 5

R = 0.8483      RSQ = 0.7197         37 ITERATIONS.

  V       BETA       B
  2     1.2061     0.7765
  3     1.4850     0.9463
  5     0.2198     6.6974
REG. CONST. =      4.1178


MODEL  2 M2  CRITERION =  1

PREDICTORS =  4- 5

R = 0.8434      RSQ = 0.7114          2 ITERATIONS.

  V       BETA       B
  4     0.8428     0.8586
  5    -0.0178    -0.5433
REG. CONST. =      7.8920


MODEL  3 M3  CRITERION =  1

PREDICTORS =  4- 4

R = 0.8432      RSQ = 0.7111          1 ITERATIONS.

  V       BETA       B
  4     0.8432     0.8591
REG. CONST. =      7.6000

F-TEST  1   SUMMER SCHOOL VS CONTROL STUDENTS -- CAT -- M1 VS M2
RSQ FULL =      0.7197      MODEL  1
RSQ REDUCED = 0.7114      MODEL  2
DIFFERENCE =  0.0083
DFN =  1.      DFD =    70.      F-RATIO =    2.079    P = 0.1501

F-TEST  2   SUMMER SCHOOL VS CONTROL STUDENTS -- CAT -- M2 VS M3
RSQ FULL =      0.7114      MODEL  2
RSQ REDUCED = 0.7111      MODEL  3
DIFFERENCE =  0.0003
DFN =  1.      DFD =    71.      F-RATIO =    0.078    P = 0.7773
```

```
     *** OUTPUT FROM PROGRAM REGRAN ***

SUMMER SCHOOL VS CONTROL STUDENTS -- 1979 -- GRADE 4 -- RAW SCORE -- CAT

PARAMETERS
COL  1- 5 =     5
COL  6-10 =    66
COL 11-15 =     3
COL 16-20 =     2
COL 21-25 =     1

DATA FORMAT = (A4,5F5.0)


INTERCORRELATION ANALYSIS.


MEANS               1          2          3          4          5
              60.3636    28.7121    29.0909    57.8030     0.5000


SIGMAS              1          2          3          4          5
              16.4654    31.0292    31.5238    16.9126     0.5000


R MATRIX            1          2          3          4          5

         1     1.0000     0.2294     0.2698     0.9237    -0.0460

         2     0.2294     1.0000    -0.8539     0.2431     0.9253

         3     0.2698    -0.8539     1.0000     0.2973    -0.9228

         4     0.9237     0.2431     0.2973     1.0000    -0.0224

         5    -0.0460     0.9253    -0.9228    -0.0224     1.0000
```

```
MODEL  1 M1  CRITERION =  1

PREDICTORS =  2- 3  5- 5

R = 0.9299     RSQ = 0.8648         53 ITERATIONS.

  V      BETA        B
  2     1.8750     0.9950
  3     1.5514     0.8103
  5    -0.3493   -11.5039
REG. CONST. =    13.9743


MODEL  2 M2  CRITERION =  1

PREDICTORS =  4- 5

R = 0.9241     RSQ = 0.8539          2 ITERATIONS.

  V      BETA        B
  4     0.9232     0.8988
  5    -0.0253    -0.8343
REG. CONST. =     8.8294


MODEL  3 M3  CRITERION =  1

PREDICTORS =  4- 4

R = 0.9237     RSQ = 0.8533          1 ITERATIONS.

  V      BETA        B
  4     0.9237     0.8993
REG. CONST. =     8.3803

F-TEST  1   SUMMER SCHOOL VS CONTROL STUDENTS -- CAT -- M1 VS M2
RSQ FULL =     0.8648     MODEL  1
RSQ REDUCED = 0.8539      MODEL  2
DIFFERENCE =  0.0108
DFN =  1.     DFD =   62.     F-RATIO =    4.960    P = 0.0278

F-TEST  2   SUMMER SCHOOL VS CONTROL STUDENTS -- CAT -- M2 VS M3
RSQ FULL =     0.8539     MODEL  2
RSQ REDUCED = 0.8533      MODEL  3
DIFFERENCE =  0.0006
DFN =  1.     DFD =   63.     F-RATIO =    0.277*   P = 0.6071
```

* Note that the slopes at this grade are not equal. The test for equal gains is not meaningful when the slopes are unequal.

```
*** OUTPUT FROM PROGRAM REGRAN ***

SUMMER SCHOOL VS CONTROL STUDENTS — 1979 — GRADE 5 — RAW SCORE — CAT

PARAMETERS
COL  1- 5 =     5
COL  6-10 =    44
COL 11-15 =     3
COL 16-20 =     2
COL 21-25 =     1

DATA FORMAT = (A4,5F5.0)

INTERCORRELATION ANALYSIS.

MEANS               1          2          3          4          5
              33.9091    15.4545    15.4318    30.8864     0.5000

SIGMAS              1          2          3          4          5
              10.7043    16.9645    17.0166    10.0187     0.5000

R MATRIX            1          2          3          4          5

        1      1.0000     0.3965     0.0776     0.8031     0.1231

        2      0.3965     1.0000    -0.8262     0.2901     0.9110

        3      0.0776    -0.8262     1.0000     0.2996    -0.9069

        4      0.8031     0.2901     0.2996     1.0000     0.0023

        5      0.1231     0.9110    -0.9069     0.0023     1.0000
```

```
MODEL  1 M1  CRITERION =  1

PREDICTORS =  2- 3  5- 5

R = 0.8318      RSQ = 0.6919          46 ITERATIONS.

  V        BETA         B
  2      1.6593     1.0470
  3      1.0814     0.6803
  5     -0.4047    -8.6640
REG. CONST. =      11.5625


MODEL  2 M2  CRITERION =  1

PREDICTORS =  4- 5

R = 0.8122      RSQ = 0.6597           2 ITERATIONS.

  V        BETA         B
  4      0.8028     0.8578
  5      0.1213     2.5974
REG. CONST. =       6.1173


MODEL  3 M3  CRITERION =  1

PREDICTORS =  4- 4

R = 0.8031      RSQ = 0.6450           1 ITERATIONS.

  V        BETA         B
  4      0.8031     0.8581
REG. CONST. =       7.4069

F-TEST  1   SUMMER SCHOOL VS CONTROL STUDENTS -- CAT -- M1 VS M2
RSQ FULL =       0.6919      MODEL  1
RSQ REDUCED = 0.6597      MODEL  2
DIFFERENCE =   0.0322
DFN =  1.      DFD =   40.     F-RATIO =    4.185    P = 0.0448

F-TEST  2   SUMMER SCHOOL VS CONTROL STUDENTS -- CAT -- M2 VS M3
RSQ FULL =       0.6597      MODEL  2
RSQ REDUCED = 0.6450      MODEL  3
DIFFERENCE =   0.0147
DFN =  1.      DFD =   41.     F-RATIO =    1.773*   P = 0.1874
```

* Note that the slopes at this grade are not equal. The test for equal gains is not meaningful when the slopes are unequal.

Comparison of Gains Made By Summer School and Control Students By Program

Analysis Technique

Analyses equivalent to the slopes and intercepts tests in the analysis of covariance were done using program REGRAN of the EDSTAT package. The three linear models used are described below.

Model 1: $Y = a_0U + a_1X^{(1)} + a_2X^{(2)} + a_3X^{(4)} + E$

Model 2: $Y = a_4U + a_5X^{(3)} + a_6X^{(4)} + E$

Model 3: $Y = a_7U + a_8 X^{(3)} + E$

The vectors used to define the models were as follows:

Y	was the posttest ADSS score.
U	was the unit vector.
$X^{(1)}$	was pretest ADSS score if the student attended summer school; 0, if control.
$X^{(2)}$	was pretest raw score if the student was a control, 0, otherwise.
$X^{(3)}$	was pretest raw score.
$X^{(4)}$	was 1 if the student attended summer school; 0, otherwise.

The variables in the analyses on the following pages represent the vectors above according to the list below.

Vector	Variable
Y	1
$X^{(1)}$	2
$X^{(2)}$	3
$X^{(3)}$	4
$X^{(4)}$	5

Students

All pairs of summer school and control students with both pre- and posttest scores.

```
    *** OUTPUT FROM PROGRAM REGRAN ***

TITLE I SUMMER SCHOOL VS CONTROL STUDENTS -- 1979 -- ADSS SCORES -- CAT READING

PARAMETERS
COL  1- 5 =     5
COL  6-10 =    92
COL 11-15 =     3
COL 16-20 =     2
COL 21-25 =     1

DATA FORMAT = (A4,5F5.0)

INTERCORRELATION ANALYSIS.

MEANS               1          2          3          4          5
             320.5000   156.1630   157.8696   314.0326     0.5000

SIGMAS              1          2          3          4          5
              51.7428   159.6413   161.0515    46.0013     0.5000

R MATRIX            1          2          3          4          5

        1      1.0000     0.1100     0.1355     0.8562    -0.0235

        2      0.1100     1.0000    -0.9589     0.1133     0.9782

        3      0.1355    -0.9589     1.0000     0.1733    -0.9802

        4      0.8562     0.1133     0.1733     1.0000    -0.0371

        5     -0.0235     0.9782    -0.9802    -0.0371     1.0000
```

```
MODEL  1 M1  CRITERION =  1

PREDICTORS =  2- 3  5- 5

R = 0.8567      RSQ = 0.7339          41 ITERATIONS.

  V       BETA        B
  2     3.0162     0.9776
  3     2.9534     0.9489
  5    -0.0789    -8.1695
REG. CONST. =    22.1225


MODEL  2 M2  CRITERION =  1

PREDICTORS =  4- 5

R = 0.8563      RSQ = 0.7332           2 ITERATIONS.

  V       BETA        B
  4     0.8565     0.9634
  5     0.0082     0.8535
REG. CONST. =    17.5214


MODEL  3 M3  CRITERION =  1

PREDICTORS =  4- 4

R = 0.8562      RSQ = 0.7331           1 ITERATIONS.

  V       BETA        B
  4     0.8562     0.9631
REG. CONST. =    18.0562


F-TEST  1   TITLE I SUMMER VS CONTROL STUDENTS -- CAT -- M1 VS M2
RSQ FULL =      0.7339      MODEL  1
RSQ REDUCED = 0.7332      MODEL  2
DIFFERENCE =  0.0007
DFN =  1.      DFD =    88.      F-RATIO =    0.236    P = 0.6343


F-TEST  2   TITLE I SUMMER VS CONTROL STUDENTS -- CAT -- M2 VS M3
RSQ FULL =      0.7332      MODEL  2
RSQ REDUCED = 0.7331      MODEL  3
DIFFERENCE =  0.0001
DFN =  1.      DFD =    89.      F-RATIO =    0.023    P = 0.8753
```

```
     *** OUTPUT FROM PROGRAM REGRAN ***

MIGRANT SUMMER SCHOOL VS CONTROL STUDENTS — 1979 — ADSS SCORES — CAT READING

PARAMETERS
COL  1- 5 =     5
COL  6-10 =    72
COL 11-15 =     3
COL 16-20 =     2
COL 21-25 =     1

DATA FORMAT = (A4,5F5.0)


INTERCORRELATION ANALYSIS.


MEANS              1           2           3           4           5
            331.8056    161.3750    161.2639    322.6389      0.5000


SIGMAS             1           2           3           4           5
             57.0481    166.6432    166.3554     58.2765      0.5000


R MATRIX           1           2           3           4           5

       1      1.0000      0.1991      0.1135      0.8931      0.0292

       2      0.1991      1.0000     -0.9387      0.1798      0.9684

       3      0.1135     -0.9387      1.0000      0.1702     -0.9694

       4      0.8931      0.1798      0.1702      1.0000      0.0019

       5      0.0292      0.9684     -0.9694      0.0019      1.0000
```

```
MODEL   1 M1  CRITERION =  1

PREDICTORS =  2- 3  5- 5

R = 0.8960      RSQ = 0.8028          79 ITERATIONS.

  V      BETA       B
  2     2.7005    0.9245
  3     2.4033    0.8242
  5    -0.2561  -29.2233
REG. CONST. =   64.3240


MODEL   2 M2  CRITERION =  1

PREDICTORS =  4- 5

R = 0.8936      RSQ = 0.7985          2 ITERATIONS.

  V      BETA       B
  4     0.8931    0.8743
  5     0.0275    3.1391
REG. CONST. =   48.1644


MODEL   3 M3  CRITERION =  1

PREDICTORS =  4- 4

R = 0.8931      RSQ = 0.7977          1 ITERATIONS.

  V      BETA       B
  4     0.8931    0.8743
REG. CONST. =   49.7173

F-TEST  1   MIGRANT SUMMER VS CONTROL STUDENTS -- CAT -- M1 VS M2
RSQ FULL =     0.8028      MODEL  1
RSQ REDUCED =  0.7985      MODEL  2
DIFFERENCE =   0.0043
DFN =  1.      DFD =   68.     F-RATIO =    1.494    P = 0.2237

F-TEST  2   MIGRANT SUMMER VS CONTROL STUDENTS -- CAT -- M2 VS M3
RSQ FULL =     0.7985      MODEL  2
RSQ REDUCED =  0.7977      MODEL  3
DIFFERENCE =   0.0008
DFN =  1.      DFD =   69.     F-RATIO =    0.259    P = 0.6184
```

```
     *** OUTPUT FROM PROGRAM REGRAN ***

LOCAL SUMMER SCHOOL VS CONTROL STUDENTS -- 1979 -- ADSS SCORES -- CAT READING

PARAMETERS
COL  1- 5 =     5
COL  6-10 =    62
COL 11-15 =     3
COL 16-20 =     2
COL 21-25 =     1

DATA FORMAT = (A4,5F5.0)

INTERCORRELATION ANALYSIS.

MEANS              1          2          3          4          5
            353.9839   171.0323   171.5484   342.5806     0.5000

SIGMAS             1          2          3          4          5
             56.4931   174.3250   175.0916    48.6377     0.5000

R MATRIX           1          2          3          4          5

        1     1.0000     0.0888     0.1480     0.8511    -0.0111

        2     0.0888     1.0000    -0.9613     0.1237     0.9811

        3     0.1480    -0.9613     1.0000     0.1546    -0.9798

        4     0.8511     0.1237     0.1546     1.0000    -0.0106

        5    -0.0111     0.9811    -0.9798    -0.0106     1.0000
```

```
MODEL   1 M1  CRITERION =  1

PREDICTORS =  2- 3  5- 5

R = 0.8571      RSQ = 0.7346        146 ITERATIONS.

  V      BETA         B
  2     2.7485    0.8907
  3     3.3580    1.0835
  5     0.5792   65.4369
REG. CONST. =   -16.9373


MODEL   2 M2  CRITERION =  1

PREDICTORS =  4- 5

R = 0.8511      RSQ = 0.7244          1 ITERATIONS.

  V      BETA         B
  4     0.8511    0.9886
  5     0.0       0.0
REG. CONST. =    15.3168


MODEL   3 M3  CRITERION =  1

PREDICTORS =  4- 4

R = 0.8511      RSQ = 0.7244          1 ITERATIONS.

  V      BETA         B
  4     0.8511    0.9886
REG. CONST. =    15.3168

F-TEST  1   LOCAL SUMMER VS CONTROL STUDENTS -- CAT -- M1 VS M2
RSQ FULL =      0.7346      MODEL  1
RSQ REDUCED = 0.7244      MODEL  2
DIFFERENCE =  0.0102
DFN =  1.      DFD =    58.     F-RATIO =    2.237    P = 0.1364

F-TEST  2   LOCAL SUMMER VS CONTROL STUDENTS -- CAT -- M2 VS M3
RSQ FULL =      0.7244      MODEL  2
RSQ REDUCED = 0.7244      MODEL  3
DIFFERENCE =  0.0
DFN =  1.      DFD =    59.     F-RATIO =    0.0      P = 1.0000
```

```
    *** OUTPUT FROM PROGRAM REGRAN ***

SUMMER SCHOOL STUDENTS VS CONTROL STUDENTS -- 1979 -- ADSS SCORES -- CAT READING

PARAMETERS
COL  1- 5 =     5
COL  6-10 =   226
COL 11-15 =     3
COL 16-20 =     2
COL 21-25 =     1

DATA FORMAT = (A4,5F5.0)

INTERCORRELATION ANALYSIS.

MEANS              1          2          3          4          5
            333.2876   161.9027   162.7035   324.6062     0.5000

SIGMAS             1          2          3          4          5
             56.4537   166.1170   166.7848    52.2278     0.5000

R MATRIX           1          2          3          4          5

       1      1.0000     0.1381     0.1360     0.8734    -0.0024

       2      0.1381     1.0000    -0.9508     0.1444     0.9746

       3      0.1360    -0.9508     1.0000     0.1693    -0.9755

       4      0.8734     0.1444     0.1693     1.0000    -0.0153

       5     -0.0024     0.9746    -0.9755    -0.0153     1.0000
```

```
MODEL  1 M1  CRITERION =  1

PREDICTORS =  2- 3  5- 5

R = 0.8735     RSQ = 0.7630          2 ITERATIONS.

  V      BETA        B
  2     2.7846     0.9463
  3     2.7835     0.9422
  5     0.0        0.0
REG. CONST. =    26.7808


MODEL  2 M2  CRITERION =  1

PREDICTORS =  4- 5

R = 0.8735     RSQ = 0.7630          2 ITERATIONS.

  V      BETA        B
  4     0.8736     0.9443
  5     0.0110     1.2382
REG. CONST. =    26.1560


MODEL  3 M3  CRITERION =  1

PREDICTORS =  4- 4

R = 0.8734     RSQ = 0.7628          1 ITERATIONS.

  V      BETA        B
  4     0.8734     0.9441
REG. CONST. =    26.8341

F-TEST  1  SUMMER SCHOOL VS CONTROL STUDENTS -- CAT -- M1 VS M2
RSQ FULL =     0.7630     MODEL  1
RSQ REDUCED =  0.7630     MODEL  2
DIFFERENCE =   0.0000
DFN =  1.      DFD =  222.     F-RATIO =   0.024    P = 0.8704

F-TEST  2  SUMMER SCHOOL VS CONTROL STUDENTS -- CAT -- M2 VS M3
RSQ FULL =     0.7630     MODEL  2
RSQ REDUCED =  0.7628     MODEL  3
DIFFERENCE =   0.0001
DFN =  1.      DFD =  223.     F-RATIO =   0.113    P = 0.7366
```

Follow-up Comparison of Gains By Summer School and Control Students From April, 1978, to April, 1979, at Grades 3 and 5

Analysis Technique

Analyses equivalent to the slopes and intercepts tests in the analysis of covariance were done using program REGRAN of the EDSTAT package. The three linear models used are described below.

Model 1: $Y = a_0U + a_1X^{(1)} + a_2X^{(2)} + a_3X^{(4)} + E$

Model 2: $Y = a_4U + a_5X^{(3)} + a_6X^{(4)} + E$

Model 3: $Y = a_7U + a_8X^{(3)} + E$

The vectors used to define the models were as follows:

Y	was posttest raw score.
U	was the unit vector.
$X^{(1)}$	was pretest raw score if the student attended summer school; 0, if control.
$X^{(2)}$	was pretest raw score if the student was a control; 0, otherwise.
$X^{(3)}$	was pretest raw score.
$X^{(4)}$	was 1 if the student attended summer school; 0, otherwise.

The variables in the analyses on the following pages represent the vectors above according to the list below.

Vector	Variables
Y	1
$X^{(1)}$	2
$X^{(2)}$	3
$X^{(3)}$	4
$X^{(4)}$	5

Students

All pairs of summer school and control students with both April, 1978, and April, 1979, scores.

```
*** OUTPUT FROM PROGRAM REGRAN ***

TITLE I SUMMER SCHOOL VS CONTROL STUDENTS -- GR 2(77-78) -- RAW SCORES

PARAMETERS
COL   1- 5 =       5
COL   6-10 =      72
COL  11-15 =       3
COL  16-20 =       2
COL  21-25 =       1

DATA FORMAT = (A4,5F5.0)

INTERCORRELATION ANALYSIS.

MEANS              1          2          3          4          5
             57.6944    20.6806    20.8472    41.5278     0.5000

SIGMAS             1          2          3          4          5
             17.4926    23.3772    23.4761    15.3415     0.5000

R MATRIX           1          2          3          4          5

      1       1.0000     0.0816     0.3051     0.5911    -0.1350

      2       0.0816     1.0000    -0.7856     0.3217     0.8846

      3       0.3051    -0.7856     1.0000     0.3332    -0.8880

      4       0.5911     0.3217     0.3332     1.0000    -0.0109

      5      -0.1350     0.8846    -0.8880    -0.0109     1.0000

MODEL  1 M1  CRITERION =  1

PREDICTORS =  2- 3  5- 5
R = 0.6051      RSQ = 0.3662         29 ITERATIONS.

  V      BETA        B
  2    0.9127     0.6830
  3    0.8883     0.6619
  5   -0.1536    -5.3729
REG. CONST. =   32.4574
```

```
MODEL  2 M2  CRITERION =  1

PREDICTORS =  4- 5
P =  4    RSQ = 0.3494
P =  5    RSQ = 0.3659

R = 0.6049       RSQ = 0.3659           2 ITERATIONS.

  V      BETA        B
  4    0.5897     0.6724
  5   -0.1286    -4.4981
REG. CONST. =    32.0198


MODEL  3 M3  CRITERION =  1

PREDICTORS =  4- 4
P =  4   RSQ = 0.3494

R = 0.5911       RSQ = 0.3494           1 ITERATIONS.

  V      BETA        B
  4    0.5911     0.6740
REG. CONST. =    29.7046


F-TEST  1   TITLE I SUMMER VS CONTROL STUDENTS -- CAT -- M1 VS M2
RSQ FULL =       0.3662     MODEL  1
RSQ REDUCED =    0.3659     MODEL  2
DIFFERENCE =     0.0002
DFN =  1.        DFD =   68.      F-RATIO =    0.025    P = 0.8697


F-TEST  2   TITLE I SUMMER VS CONTROL STUDENTS -- CAT -- M2 VS M3
RSQ FULL =       0.3659     MODEL  2
RSQ REDUCED =    0.3494     MODEL  3
DIFFERENCE =     0.0165
DFN =  1.        DFD =   69.      F-RATIO =    1.799    P = 0.1811
```

```
     *** OUTPUT FROM PROGRAM REGRAN ***

   TITLE I SUMMER SCHOOL VS CONTROL STUDENTS -- GR 4(77-78) -- RAW SCORES

   PARAMETERS
   COL   1- 5 =       5
   COL   6-10 =      98
   COL  11-15 =       3
   COL  16-20 =       2
   COL  21-25 =       1

   DATA FORMAT = (A4,5F5.0)

   INTERCORRELATION ANALYSIS.

   MEANS                1            2            3            4            5
                     41.5714      16.5918      16.6122      33.2041       0.5000

   SIGMAS               1            2            3            4            5
                     11.6216      18.7191      18.7310      12.2474       0.5000

   R MATRIX             1            2            3            4            5

           1          1.0000       0.2010       0.2639       0.7107      -0.0562

           2          0.2010       1.0000      -0.7861       0.3262       0.8864

           3          0.2639      -0.7861       1.0000       0.3279      -0.8869

           4          0.7107       0.3262       0.3279       1.0000      -0.0017

           5         -0.0562       0.8864      -0.8869      -0.0017       1.0000

   MODEL  1 M1  CRITERION =  1

   PREDICTORS =  2- 3  5- 5
   R = 0.7149    RSQ = 0.5111          32 ITERATIONS.

      V       BETA        B
      2     1.1594     0.7198
      3     1.0155     0.6301
      5    -0.1801    -4.1865
   REG. CONST. =    21.2549
```

```
MODEL  2 M2  CRITERION =  1

PREDICTORS =   4- 5
P =  4    RSQ = 0.5051
P =  5    RSQ = 0.5081

R = 0.7128      RSQ = 0.5081           2 ITERATIONS.

  V       BETA        B
  4     0.7106     0.6743
  5    -0.0550    -1.2786
REG. CONST. =     19.8209


MODEL  3 M3  CRITERION =  1

PREDICTORS =   4- 4
P =  4    RSQ = 0.5051

R = 0.7107      RSQ = 0.5051           1 ITERATIONS.

  V       BETA        B
  4     0.7107     0.6744
REG. CONST. =     19.1787


F-TEST  1   TITLE I SUMMER VS CONTROL STUDENTS -- CAT -- M1 VS M2
RSQ FULL =       0.5111      MODEL  1
RSQ REDUCED = 0.5081      MODEL  2
DIFFERENCE =  0.0029
DFN =  1.       DFD =    94.      F-RATIO =     0.566    P = 0.4601

F-TEST  2   TITLE I SUMMER VS CONTROL STUDENTS -- CAT -- M2 VS M3
RSQ FULL =       0.5081      MODEL  2
RSQ REDUCED = 0.5051      MODEL  3
DIFFERENCE =  0.0030
DFN =  1.       DFD =    95.      F-RATIO =     0.584    P = 0.4528
```

Frequency Distribution For Pretest/Expectation Deviation Scores

```
TEACHER EXPECTATION STUDY ON 1979 SUMMER SCHOOL STUDENTS

FREQUENCY DISTRIBUTION FOR VARIABLE # 2 (POSTTEST-PRETEST     )

                          RELATIVE  ADJUSTED  CUMULATIVE
              ABSOLUTE      FREQ      FREQ      FREQ
     CODE       FREQ       (PCT.)    (PCT.)    (PCT.)

      -6.         1.         0.5       0.5       0.5

      -5.         1.         0.5       0.5       1.0

      -4.         5.         2.5       2.5       3.4

      -3.        10.         4.9       4.9       8.3

      -2.        23.        11.3      11.3      19.6

      -1.        49.        24.0      24.0      43.6

       0.        59.        28.9      28.9      72.5

       1.        33.        16.2      16.2      88.7

       2.        12.         5.9       5.9      94.6

       3.         9.         4.4       4.4      99.0

       4.         1.         0.5       0.5      99.5

       5.         1.         0.5       0.5     100.0

    TOTAL       204.       100.0     100.0

VALID CASES=  204
MISSING CASES=     0

MEAN=    -0.3088          VARIANCE=     2.7367
STD. DEV=    1.6543       STD. ERR=     0.1158
MAXIMUM=     5.0000       MINIMUM=     -6.0000
RANGE=   11.0000
```

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Attachment A-11
(page 3 of 3)

```
TEACHER EXPECTATION STUDY ON 1979 SUMMER SCHOOL STUDENTS

FREQUENCY DISTRIBUTION FOR VARIABLE # 1 (POSTTEST=TEACHER EXP)

                             RELATIVE  ADJUSTED  CUMULATIVE
                  ABSOLUTE     FREQ      FREQ       FREQ
      CODE          FREQ     (PCT.)    (PCT.)     (PCT.)

       -6.           1.        0.5       0.5        0.5

       -5.           1.        0.5       0.5        1.0

       -4.           4.        2.0       2.0        2.9

       -3.          19.        9.3       9.3       12.3

       -2.          33.       16.2      16.2       28.4

       -1.          47.       23.0      23.0       51.5

        0.          49.       24.0      24.0       75.5

        1.          22.       10.8      10.8       86.3

        2.          16.        7.8       7.8       94.1

        3.           7.        3.4       3.4       97.5

        4.           2.        1.0       1.0       98.5

        5.           2.        1.0       1.0       99.5

        6.           1.        0.5       0.5      100.0

    TOTAL          204.      100.0     100.0

  VALID CASES=   204
  MISSING CASES=     0

  MEAN=      -0.4804          VARIANCE=      3.4233
  STD. DEV=   1.8502          STD. ERR=      0.1295
  MAXIMUM=    6.0000          MINIMUM=      -6.0000
  RANGE=     12.0000
```

Assessment of Contribution Made By Teacher Expectation to the Prediction of Posttest Scores

Analysis Techniques

Two linear models, one with information about teacher expectation and one without, were compared to assess the increase in predictive power achieved by including teacher expectation information. The two models were as follows:

Model 1: $Y = a_0U + a_1X^{(1)} + a_2X^{(2)} + E$

Model 2: $Y = a_3U + a_4X^{(1)} + E$

The vectors were defined as follows:

Y was the October CAT Reading Total percentile.

$X^{(1)}$ was the April CAT Reading Total precentile.

$X^{(2)}$ was the teacher estimate of student achievement (decile).

The standard error of estimate and the index of forcasting efficiency were computed by hand.

Students

All summer school and control students with pre- and posttest scores and teacher estimates of achievement.

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Attachment A-12
(page 2 of 3)

```
*** OUTPUT FROM PROGRAM REGRAN ***

VAR 1=POSTTEST %ILE, VAR 2=PRETEST %ILE, VAR 3=EXPECTATION

PARAMETERS
COL  1- 5 =     3
COL  6-10 =   204
COL 11-15 =     3
COL 16-20 =     2
COL 21-25 =     1

DATA FORMAT = (A4,3F5.0)


INTERCORRELATION ANALYSIS.

MEANS                 1          2           3
                 34.2157    37.0735      4.3529

SIGMAS                1          2           3
                 23.9639    24.0404      2.1857


R MATRIX              1          2           3

        1         1.0000     0.7769      0.6929

        2         0.7769     1.0000      0.8096

        3         0.6929     0.8096      1.0000


MODEL  1 M1  CRITERION =  1

PREDICTORS =  2- 3

R = 0.7845     RSQ = 0.6155          2 ITERATIONS.

   V      BETA        B
   2    0.6269     0.6249
   3    0.1853     2.0316
REG. CONST. =     2.2043
```

```
MODEL  2 M2  CRITERION =  1

PREDICTORS =  2- 2

R = 0.7769     RSQ = 0.6036            1 ITERATIONS.

  V       BETA       B
  2    0.7769     0.7745
REG. CONST. =     5.5034
F-TEST  1   POSTTEST PREDICTED BY PRETEST -- M1 VS M2
RSQ FULL =     0.6155     MODEL  1
RSQ REDUCED = 0.6036      MODEL  2
DIFFERENCE =  0.0118
DFN =  1.     DFD =  201.     F-RATIO =   6.183   P = 0.0131
```

Title I Migrant

Appendix B

TESTS OF BASIC EXPERIENCES

LANGUAGE TEST

Instrument Description: Tests of Basic Experiences - Language Test

Brief description of the instrument:

The Language Test of the Tests of Basic Experiences series is a 28-item multiple choice group test which deals with such basic language concepts as vocabulary, sentence structure, verb tense, sound-symbol relationships, and letter recognition. Level K is designed to be given to pre-kindergarten and kindergarten students.

To whom was the instrument administered?

The pre-kindergarten students participating in the summer school program at St. Elmo and Maplewood.

How many times was the instrument administered?

Twice to each pre-K unit; once as a pretest and once as a posttest.

When was the instrument administered?

Pretests were administered on June 11th and 12th, and posttests were administered on July 11th and 12th.

Where was the instrument administered?

In the pre-kindergarten classrooms.

Who administered the instrument?

The pre-kindergarten teacher administered the test. ORE staff and school personnel served as proctors.

What training did the administrators have?

The teachers received thorough training through an inservice workshop given by the Project Evaluator.

Was the instrument administered under standardized conditions?

Yes.

Were there problems with the instrument or the administration that might affect the validity of the data?

No.

Who developed the instrument?

Margaret H. Moss, Ed. D. The test series is published by CTB/McGraw-Hill.

What reliability and validity data are available on the instrument?

The test publisher reports an alpha coefficient of .84 for the Language Test when given to pre-kindergarten students. The Examiner's Manual provides an assessment of the tests' content and predictive validity.

Are there norm data available for interpreting the results?

There are no summer norms for the TOBE test series.

TESTS OF BASIC EXPERIENCES

LANGUAGE TEST

Purpose

The Language Test from the Test of Basic Experiences (TOBE) series was administered to the participants in the Migrant pre-kindergarten summer school in order to assess progress toward the following objective:

> *By the end of the summer program, the migrant children in pre-K summer school classes will show significant gains on a measurement instrument tc be developed by the Office of Research and Evaluation staff, or a commercially prepared test applicable to the target population.*

Procedure

A memo (Attachment B-1) was sent to the summer school pre-K teachers on June 5, 1979 to inform them of a training session to be held on June 7 at Maplewood school. During the training session the Evaluator reviewed the testing procedures, the test items, and the practice test, and scheduled a pre- and posttest date for each pre-K class.

The students were given practice before the pretest in marking in a similar test booklet under simulated testing conditions. They were also given practice in working with the screens which were used to reduce the impulse and opportunity to share answers during the testing.

The pretest was administered on June 11 and 12th. On July 2 a memo (Attachment B-2) was sent to the summer school pre-K teachers to remind them of the July 11th and 12th posttest dates. The pre- and posttest were administered in either English or Spanish, depending upon the teacher's judgment as to the most appropriate language for each child. Most students were tested in English. The administrations in English were done in large group settings in classrooms, while the Spanish speakers were taken out of the classroom by the aide. The tests were administered by the teachers with ORE staff and school personnel acting as proctors. The number of students supervised by each proctor ranged from three tc four. The students tested in Spanish were tested by their teacher either on the following day or immediately following the administration to the English speakers. Students who were absent during the group testing sessions were tested individually by their teachers upon their return to class.

The test booklets were scored by hand, and the students' names, schools, sex, testing time (pre or post), item responses, total scores, and language of administration were coded from the test booklets to coding sheets. Attachment B-3 is the card file layout used to code and keypunch the data. The data are available at U. T. on PF 2306, 3000, AMFTOBD. An SPSS program available on PF 2306, 3000, TOBC1 was used to identify scoring errors. Item responses were recoded to "correct" or "incorrect" using recode statements and were summed using a compute statement. The resulting test scores were then compared with the test scores on the AMFTOBD data file by means of a "write cases" statement. A one-tailed *t* test for dependent data was performed on the corrected pre- and posttest data using SPSS subprogram T-TEST. The control cards for the *t* test can be found on PF 2306, 3000, TOBC2. The *t*- test results can be found on PF 2306, 3000, TOBETT.

Too few pre-K students (*N*=2) were pre- and posttested in Spanish to allow for meaningful pre-posttest comparisons. Only the 21 students pre- and posttested in English, therefore, were included in the analyses. Due to the small sample size, the data from all three pre-K units were merged and analyzed together.

Results

The results are shown in Figure B-1. Figure B-1 reveals the students had an average score of 16.24 on the pretest and 18.38 on the posttest. This gain is highly significant ($t = -3.87$, $p < .001$), and reveals the majority of the pre-K participants completely attained the objective.

A summary of the results (Attachment B-4) was sent to the Migrant teachers, their summer school principals, and the Migrant Coordinator following the completion of the analyses.

Variable	Number Of Cases	Mean	*t* Value	Degrees of Freedom	Probability
Pretest	21	16.24	-3.87	20	<.001
Posttest		18.38			

Figure B-1. PRE- POSTTEST COMPARISON OF THE SUMMER SCHOOL PRE-K STUDENTS ON THE TOBE LANGUAGE TEST.

Attachment B-1

AUSTIN INDEPENDENT SCHOOL DISTRICT
Office of Research and Evaluation

June 5, 1979

TO: Nelda Alvarado
Ofelia Saucedo
Deborah Davidson

FROM: Myron Friedman, Title I Migrant Evaluator

SUBJECT: Testing of Migrant Pre-K Students Attending Summer School

The evaluation of the Title I Migrant Pre-Kindergarten Summer School component requires that we test the migrant pre-K students at the beginning and end of the summer session.

We will be administering the Tests of Basic Experiences (TOBE) Language Test during the first and last week of school. As in the past, the pre-K teachers will administer the tests with O. R. E. staff present to monitor and provide assistance. We have found that the four-year olds respond best when the test is administered by their own teacher.

You have already been notified by Mr. Mata of the training session to be held on Thursday at 11 a.m. at Maplewood. At that time I will review with you 1) the procedures for testing,
2) the test items, and
3) a practice test.

At the training session we will also set a schedule for pre- and post-testing. If you have any questions, please call me at 458-1227.

MF:rrf

Approved: ______________________________
Senior Evaluator for Compensatory Education Programs

Approved: Freda M Holley
Director, Research and Evaluation

Approved: ______________________________
Director, Elementary Education

cc: Jose Mata
Oscar Cantu
Lee Laws
Diane Crowe
Joe Dan Mills

Attachment B-2

AUSTIN INDEPENDENT SCHOOL DISTRICT
Office of Research and Evaluation

July 2, 1979

TO: Nelda Alvarado
Ofelia Saucedo
Deborah Davidson

FROM: Patsy Totusek, Title I Migrant Evaluator PT.

SUBJECT: Posttesting of Migrant Pre-K Students Attending Summer School

This is to inform you that I will be replacing Myron Friedman as the Title I Migrant Evaluator. I plan to follow the same testing schedule he discussed with you earlier this summer, and will visit your campus the second week of July to assist you in administering the Tests of Basic Experiences (TOBE) Language posttest. As previously arranged, the posttests will be administered:

Maplewood

Wednesday, July 11, 9:00 A.M.

St. Elmo

Thursday, July 12, 9:00 A.M.

In reporting the results of the summer school activities to TEA, I will need to know the ethnicity of the migrant students who participated in the program. Please complete the attached form, and I will obtain it from you when I see you at the TOBE posttest.

If you have any questions between now and then, please feel free to call me at 458-1228.

Approved: Jonathan J. Curtis
Senior Evaluator for Compensatory Education Programs

Approved: Freda M. Holley
Director, Research and Evaluation

Approved:
Director, Elementary Education

PT:RRF

cc: Lee Laws
Oscar Cantu
Joe Dan Mills
Jose Mata
Diane Crowe

79.16

FILE ID A / M / F

CARD FILE LAYOUT

LOCATION:

PROGRAM: Title I Migrant

AISD

YEAR: 1979-80

X UT PF 2306, 3000, AMFTOBD
acct. pass. file name

CONTENTS: 1979 MIGRANT SUMMER SCHOOL PRE-K TOBE PRE- AND POSTTEST DATA

Field	Columns	Description
A	1-3	File ID:AMF
B	5-24	Last Name First Name
C	26-28	School Code 136 = St. Elmo 122 = Maplewood
D	30-30	Pretest = 1 Posttest = 2
E	32-32	Male = 1 Female = 2
F	34-61	Item Responses (#1-28)
G	65-65	Language English = 1 Spanish = 2
H	67-68	Total Raw Score (1-28)

79.16

Attachment B-4
(Page 1 of 2)

AUSTIN INDEPENDENT SCHOOL DISTRICT
Office of Research and Evaluation

August 21, 1979

TO: Nelda Alvarado
Debbie Davidson
Ofelia Saucedo

FROM: Patsy Totusek, Title I Migrant Evaluator

SUBJECT: Title I Migrant Pre-Kindergarten Summer School Results

A total of 33 Migrant students participated in the Migrant pre-kindergarten summer school program. The achievement objective for the pre-K students was as follows:

> *By the end of the summer program, Migrant children in pre-K summer school classes will show significant gains on a measurement instrument to be developed by the Office of Research and Evaluation staff, or a commercially prepared test applicable to the target population.*

St. Elmo and Maplewood Combined

As you know, the TOBE Language Test was administered as a pre- and posttest measure. A total of 21 pre-K summer school students at St. Elmo and Maplewood were pre- and posttested with the English version of the TOBE. These students had an average score of 16.24 on the pretest, and 18.38 on the posttest. This gain is highly significant, and reveals the majority of the pre-K participants completely attained the objective.

St. Elmo

Eight students were pre- and posttested at St. Elmo. They had an average score of 18.75 on the pretest and 20.63 on the posttest, which reflects a significant gain.

Maplewood

Thirteen students were pre- and posttested at Maplewood. They had an average score of 14.69 on the pretest and 17.00 on the posttest, which also reflects a significant gain. Two few pre-K students at Maplewood were pre- and posttested with the Spanish version of the TOBE to allow for meaningful comparisons.

Should you have any questions about these findings, I will be happy to answer them for you. In the meantime, please return any extra Teacher's Manuals, answer booklets, etc. through the school mail (Patsy Totusek, Administration Building, Box 79).

Approved: Jonathan Curtis
Senior Evaluator for Compensatory Education Programs

Approved: Freda M Holley
Director, Research and Evaluation

Approved:
Director, Elementary Education

PT:rrf

cc: Joe Dan Mills
Diane Crowe
Jose Mata